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SIXTIETH ANNUAL REPORT

OF THE

Ohio State Board of Agriculture

WITH AN ABSTRACT OF
THE PROCEEDINGS OF

The County Agricultural Societies

For the Year 1905

TO THE

General Assembly of the State of Ohio

Springfield, Ohio:
The Springfield Publishing Company,
State Printers.
1906.

ANNUAL REPORT

OF THE

Ohio State Board of Agriculture

For the Year 1905

Department of Agriculture,
Columbus, O., March 1, 1905.

To the General Assembly of Ohio:

Gentlemen:—In compliance with the provisions of sections 3693 and 3694 of the Revised Statutes of the State, the Ohio State Board of Agriculture has the honor of submitting herewith its sixtieth annual report.

This report contains the transactions of the Board, agricultural statictics, annual reports of the inspection and analyses of commercial feed stuffs and commercial fertilizers, county farmers' institutes, nursery and orchard inspection, the Board of Live Stock Commissioners and of county agricultural societies for 1905; and proceedings of the annual meeting of the Board and the State Farmers' Institute held January, 1906.

The improvements on the fair grounds, which were generously provided for by the Seventy-seventh General Assembly, were completed before the Fair, and immense as these new buildings are, they were promptly filled and "overflows" covered the adjacent ground.

The officers and members of the Board and of every division of the Ohio Department of Agriculture are endeavoring to perform faithfully the many duties required of them by the several acts of the General Assembly and hope they will receive the support and co-operation of every one interested in agriculture.

Respectfully,
The Ohio State Board of Agriculture,
By W. W. Miller, *Secretary.*

25 N '07 Recd.

Ohio State Board of Agriculture

1905

OFFICERS.

WILLIAM MILLER, President. ROLDON O. HINSDALE, Vice President.
THOMAS L. CALVERT, Treasurer.
WELLS W. MILLER, Secretary.........Columbus.

MEMBERS.

	Term Expires.
WILLIAM MILLER, Gypsum, Ottawa County	January, 1906
JEREMIAH L. CARPENTER, Carpenter, Meigs County	January, 1906
CHARLES H. GANSON, Urbana, Champaign County	January, 1907
ALFRED PUTNAM SANDLES, Ottawa, Putnam County	January, 1907
ROLDON O. HINSDALE, Wadsworth, Medina County	January, 1908
SAMUEL TAYLOR, Grove City, Franklin County	January, 1908
LINDLEY P. BAILEY, Tacoma, Belmont County	January, 1909
EDWIN L. LYBARGER, Spring Mountain, Coshocton County	January, 1909
THADDEUS E. CROMLEY, Ashville, Pickaway Coutny	January, 1910
THOMAS. L. CALVERT, Selma, Clark County	January, 1910

EXECUTIVE COMMITTEE.

WILLIAM MILLER, Chairman. ALFERD PUTNAM SANDLES.
JEREMIAH L. CARPENTER. SAM'L TAYLOR. THADDEUS E. CROMLEY.

FARMERS' INSTITUTE COMMITTEE.

THADDEUS E. CROMLEY, Chairman. THOMAS L. CALVERT.
ROLDON O. HINSDALE.

AUDITING COMMITTEE.

CHARLES H. GANSON, Chairman. LINDLEY P. BAILEY.
EDWIN L. LYBARGER.

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Ohio State Board of Agriculture
1906

OFFICERS.

A. P. SANDLES	President
C. H. GANSON	Vice-President
SAMUEL TAYLOR	Treasurer
T. L. CALVERT, Columbus	Secretary
J. W. FLEMING, Columbus	Assistant Secretary

MEMBERS.

	Term Expires.
C. H. GANSON, Urbana, Champaign county	January, 1907
A. P. SANDLES, Ottawa, Putnam county	January, 1907
R. O. HINSDALE, Wadsworth, Medina county	January, 1908
SAMUEL TAYLOR, Grove City, Franklin county	January, 1908
L. P. BAILEY, Tacoma, Belmont county	January, 1909
H. M. BROWN, Hillsboro, Highland county	January, 1909
T. E. CROMLEY, Ashville, Pickaway county	January, 1910
T. L. CALVERT, Selma, Clark county	January, 1910
WILLIAM MILLER, Gypsum, Ottawa county	January, 1911
C. W. McFARLAND, Galion, R. R., Morrow county	January, 1911

EXECUTIVE COMMITTEE.

A. P. SANDLES, Chairman.

H. M. BROWN,
C. W. McFARLAND,
C. H. GANSON,
WILLIAM MILLER.

FARMERS' INSTITUTE COMMITTEE.

T. L. CALVERT, Chairman.

R. O. HINSDALE,
WILLIAM MILLER.

AUDITING COMMITTEE.

L. P. BAILEY, Chairman.

SAMUEL TAYLOR,
T. E. CROMLEY.

LIST OF MEMBERS OF THE OHIO STATE BOARD OF AGRICULTURE FROM THE ORGANIZATION OF THE BOARD TO DATE.

(NOTE.—The act creating the State Board of Agriculture, passed in 1846, provided for fifty-three members and named them. The act was amended in 1847, reducing the number of members to ten. Five members were elected each year for a term of two years until 1898, when the act was so amended as to provide for the election of two members each year for a term of five years.)

Names.	Years of Service, Inclusive.	Residence.
John B. Bayless	1846	Jefferson County.
Henry C. Brish	1846	Seneca County.
Frederick Bonner	1846	Greene County.
Joseph Burns	1846	Coshocton County.
John Chaney	1846	Fairfield County.
G. W. Cowden	1846	Trumbull County.
Absalom Dun	1846	Butler County.
John Eckels	1846	Hancock County.
Elias Florence	1846	Pickaway County.
John Fuller	1846	Erie County.
Geo. W. Gibbons	1846	Muskingum County.
William Gill	1846	Pickaway County.
H. N. Gillett	1846	Lawrence County.
L. C. Goble	1846	Putnam County.
David Gregory	1846	Delaware County.
Anson Howard	1846	Champaign County.
John Johnson	1846	Miami County.
Aaron Johnson	1846	Perry County.
Greenbury Keen	1846	Portage County.
Billius Kirtland	1846	Mahoning County.
Newton Larsh	1846	Preble County.
Liba Lindley	1846	Athens County.
Jas. Loudon	1846	Brown County.
John McElderry	1846	Tuscarawas County.
Wm. McFadden	1846	Harrison County.
Beatty McFarland	1846	Jefferson County.
John Martin	1846	Columbiana County.
Isaac Moore	1846	Lake County.
Gilman C. Mudgett	1846	Paulding County.
Samuel Myers	1846	Crawford County.
Isaac Neiswanger	1846	Belmont County.
Simon Perkins	1846	Summit County.
Henry Protzman	1846	Montgomery County.
W. R. Putman, Jr.	1846	Washington County.
Felix Renick	1846	Ross County.
Jas. L. Reynolds	1846	Stark County.
Benj. Ruggles	1846	Belmont County.
Sam'l Spangler	1846	Fairfield County.
David Stevens	1846	Richland County.
Abraham Studdebaker	1846	Darke County.
Dowty Utter	1846	Clermont County.
John I. Vanmeter	1846	Pike County.
Richard Warner	1846	Medina County.
Jesse Wilson	1846	Shelby County.
J. M. Millikin	1846	Hamilton.
J. T. Pugsley	1846	Convenience.
Allen Trimble	1846–51	Hillsboro.
M. L. Sullivant	1846–53	Columbus.
Sam'l Medary	1846–53	Columbus.
Darius Lapham	1846–50	Cincinnati.

MEMBERS OF THE STATE BOARD OF AGRICULTURE.—Continued.

Names.	Years of Service, Inclusive.	Residence.
Arthur Watts	1846–52	Chillicothe.
J. P. Kirtland	1846–48	Cleveland.
A. E. Strickle	1846–49	Wilmington.
M. B. Bateham	1847–51	Columbus.
John Codding	1847–49	Granger.
C. Springer	1848–52	Meadow Farm.
J. M. Edwards	1848–52	Canfield.
J. G. Gest	1848–54	Spring Valley.
F. R. Elliott	1849–51	Cleveland.
J. T. Pugsley	1850–51	Convenience.
S. Halloway	1850–51	St. Clairsville.
William Case	1852–53	Cleveland.
Philo Adams	1852–53	Huron.
R. W. Musgrave	1852–57	Sulphur Springs.
R. W. Steele	1853–56	Dayton.
William H. Ladd	1853–56	Richmond.
D. McIntosh	1853–54	Shalersville.
J. T. Worthington	1853–56	Chillicothe.
Joseph Sullivant	1854–55	Columbus.
John K. Greene	1854–57	Cincinnati.
James L. Cox	1854–55	Zanesville.
B. Stedman	1854–57	Cleveland.
Alexander Waddle	1855–60	South Charleston.
Abel Krum	1855–58	Cherry Valley.
Lucien Buttles	1856–59	Columbus.
G. W. Baker	1856–57	Marietta.
John M. Milliken	1857–62	Hamilton.
Luther Smith	1857–58	West Liberty.
Thomas S. Webb	1857–58	Massillon.
Norton S. Townshend	1858–63	Avon.
L. Q. Rawson	1858–59	Fremont.
James M. Trimble	1858–61	Hillsboro.
John Reber	1858–61	Lancaster.
D. E. Gardner	1859–64	Toledo.
William Dewitt	1859–64	Cleveland.
C. W. Potwin	1859–62	Zanesville.
T. C. Jones	1860–67	Delaware.
Henry B. Perkins	1860–63	Warren.
David Taylor	1861–66	Columbus.
Jacob Egbert	1862–63	Lebanon.
Nelson J. Turney	1862–69	Circleville.
D. McMillan	1863–70	Xenia.
W. R. Putnam	1863–64	Marietta.
William F. Greer	1864–67	Painesville.
James Fullington	1864–69	Irwin Station.
William B. McClung	1864–71	Troy.
James W. Ross	1865–70	Perrysburg.
R. R. Donnelly	1865–68	Wooster.
James Buckingham	1865–72	Zanesville.
J. Park Alexander	1867–70	Akron.
Norton S. Townshend	1868–69	Avon.
William Lang	1868–71	Tiffin.
D. C. Richmond	1869–74	Sandusky.
R. P. Cannon	1870–75	Aurora.
James B. Jamison	1870–77	Cadiz.
L. G. Delano	1870–75	Chillicothe.
L. B. Sprague	1871–76	Springfield.
Simpson Harmount	1871–76	New Philadelphia.
John A. Warder	1871–76	Cleves.

MEMBERS OF THE STATE BOARD OF AGRICULTURE.—Continued.

Names.	Years of Service, Inclusive.	Residence.
W. S. Hickox	1872–73	Mansfield.
B. W. Carlisle	1872–79	Hooker's Station.
Justus C. Stephens	1873–74	Kenton.
John M. Pugh	1874–79	Columbus.
L. B. Wing	1875–80	Newark.
Russell C. Thompson	1875–76	Sylvania.
Leo Weltz	1876–83	Wilmington.
D. L. Pope	1876–81	Welshfield.
Charles Smith	1877–80	Marion.
E. T. Stickney	1877–78	Republic.
A. E. Stone	1877–78	Gallipolis.
Peter Murphy	1877–80	Hughes' Station.
W. N. Cowden	1878–83	Quaker City.
R. Baker	1879–82	Elyria.
Arvine C. Wales	1879–82	Massillon.
R. H. Hayman	1880–81	Portsmouth.
O. P. Chaney	1880–82	Canal Winchester.
C. D. Bailey	1881–88	Gallipolis.
J. C. Levering	1881–86	Levering.
William S. Foster	1881–88	Urbana.
L. B. Harris	1882–87	Upper Sandusky.
J. H. Brigham	1882–89	Delta.
L. N. Bonham	1883–86	Oxford.
H. Talcott	1883–87	Jefferson.
N. A. Sims	1883–85	Columbus.
T. P. Shields	1884–87	Watkins.
John Pow	1884–89	Salem.
S. H. Hurst	1884–89	Chillicothe.
J. J. Sullivan	1887–88	Millersburg.
Joseph H. Terrell	1887–88	New Vienna.
J. G. Russell	1887–90	Mt. Gilead.
H. G. Tryon	1888–91	Willoughby.
J. M. Black	1888–91	Hanover (Fairmount, W. Va.)
A. H. Kling	1889–96	Marion.
H S. Grimes	1889–90	Portsmouth.
A. J. Clark	1889–98	Cambridge.
W. W. Miller	1889–94	Castalia.
J. W. Pollock	1890–93	Cedarville.
N. Ohmer	1890–95	Dayton.
L. G. Ely	1890–91	West Unity.
E. L. Hinman	1890–93	Columbus.
J. C. Bower	1891–98	Athens (Groveport.)
George Lewis	1891–94	Van Wert.
Chester Bordwell	1892–93	Batavia.
F. A. Derthick	1892–95	Mantua.
J. T. Robinson	1894–97	Rockaway.
G. Liggett	1894–1901	Watkins.
J. N. Pringle	1894–95	Cardington.
E. C. Ellis	1895–98	Crestvue.
Chester Bordwell	1895–1901	Batavia.
L. G. Ely	1896–1900	Fayette (West Unity).
H. S. Grimes	1896–1900	Portsmouth.
Albert Hale	1896–99	Mogadore.
J. S. Stuckey	1897–1903	Van Wert.
S. H. Ellis	1898–99	Waynesville.
D. J. Green	1899–1902	Renrock.
B. P. Baldwin	1899–1903	Tiger.
Samuel Taylor	1899	Grove City.

MEMBERS OF THE STATE BOARD OF AGRICULTURE.—Concluded.

Names.	Years of Service, Inclusive.	Residence.
T. E. Cromley	1900	Ashville.
*T. L. Calvert	1900–1906	Selma.
Wm. Miller	1901	Gypsum.
J. L. Carpenter	1901–1906	Carpenter.
C. H. Ganson	1902	Urbana.
A. P. Sandles	1902	Ottawa.
R. O. Hinsdale	1903	Wadsworth.
*E. L. Lybarger	1904–1906	Spring Mountain.
L. P. Bailey	1904	Tacoma.
Dr. H. M. Brown	1906	Hillsboro.
C. W. McFarland	1906	Galion.

*Resigned.

LIST OF OFFICERS OF THE OHIO STATE BOARD OF AGRICULTURE FROM ITS ORGANIZATION TO DATE; ALSO TABLES SHOWING PLACE OF HOLDING AND RECEIPTS OF EACH FAIR.

Yr.	President.	Treasurer.	Secretary.	Place of Fair.	Receipts.
1846	Allen Trimble	M. L. Sullivant	Samuel Medary	Cincinnati	
1847	Same	Same	M. B. Bateham	Columbus	
1848	Same	Same	Same		
1849	M. L. Sullivant	Samuel Medary	Same		
1850	Same	Same	Same		$8,036 18
1851	Same	Same	W. W. Mather		8,204 09
1852	Arthur Watts	Same	Same	Cleveland	13,360 00
1853	Samuel Medary	M. L. Sullivant	Geo. Sprague	Dayton	13,996 37
1854	R. W. Musgrave	Joseph Sullivant	Same	Newark	8,824 58
1855	J. T. Worthington	Same	Same	Columbus	9,745 54
1856	William H. Ladd	Lucien Buttles	Same	Cleveland	16,684 20
1857	Alexander Waddle	Same	J. H. Klippart	Cincinnati	17,530 75
1858	John M. Millikin	Same	Same	Sandusky	9,997 70
1859	N. S. Townshend	Same	Same	Zanesville	8,958 82
1860	Alexander Waddle	Chas. W. Potwin	Same	Dayton	11,998 50
1861	Darwin E. Gardner	Same	Same	Dayton	8,036 18
1862	Thomas C. Jones	David Taylor	Same	Cleveland	11,260 64
1863	N. S. Townshend	Same	Same	Cleveland	11,142 00
1864	Nelson J. Turney	Same	Same	Columbus	12,620 54
1865	Same	Same	Same	Columbus	10,658 65
1866	Wm. B. McClung	Same	Same	Dayton	14,035 80
1867	Daniel McMillen	Jas. Buckingham	Same	Dayton	18,692 98
1868	James Fullington	Same	Same	Toledo	15,606 25
1869	Same	Same	Same	Toledo	19,606 50
1870	James W. Ross	J. Park Alexander	Same	Springfield	18,252 85
1871	William Lang	Jas. Buckingham	Same	Springfield	16,460 25
1872	James Buckingham	Simpson Harmount	Same	Mansfield	19,149 45
1873	Lincoln G. Delano	Same	Same	Mansfield	22,517 50
1874	Same	Same	Same	Columbus	27,674 79
1875	R. P. Cannon	Same	Same	Columbus	20,539 30
1876	S. Harmount	J. M. Pugh	Same	Columbus	11,909 61
1877	J. B. Jamison	Same	Same	Columbus	21,151 21
1878	J. M. Pugh	L. B. Wing	Same	Columbus	11,979 50
1879	B. W. Carlisle	Same	J. W. Fleming	Columbus	30,703 35
1880	L. B. Wing	D. L. Pope	W. I. Chamberl'n	Columbus	23,682 20
1881	D. L. Pope	Leo. Weltz	Same	Columbus	29,706 16
1882	R. Baker	W. N. Cowden	Same	Columbus	34,082 52
1883	W. N. Cowden	L. B. Harris	Same	Columbus	38,513 78
1884	W. S. Foster	Same	Same	Columbus	33,306 48
1885	C. D. Bailey	J. C. Levering	Same	Columbus	29,796 51
1886	L. N. Bonham	L. B. Harris	Same	Columbus	30,533 17
1887	J. H. Brigham	Same	L. N. Bonham	Columbus	30,902 10
1888	John Pow	J. G. Russell	Same	Centennial year, no fair	
1889	Same	Same	Same	Columbus	19,637 41
1890	J. G. Russell	A. H. Kling	Same	Columbus	27,574 55
1891	J. M. Black	Same	Same	Columbus	33,878 64
1892	A. H. Kling	W. W. Miller	Same	Columbus	30,357 19
1893	J. W. Pollock	Same	Same	Columbus	19,350 93
1894	W. W. Miller	F. A. Derthick	Same	Columbus	27,260 25
1895	A. J. Clark	Same	W. W. Miller	Columbus	33,966 13
1896	J. C. Bower	A. J. Clark	Same	Columbus	22,531 20
1897	J. T. Robinson	J. C. Bower	Same	Columbus	30,369 48
1898	C. Bordwell	Same	Same	Columbus	31,023 36
1899	L. G. Ely	H. S. Grimes	Same	Columbus	33,749 17
1900	H. S. Grimes	L. G. Ely	Same	Columbus	31,521 35
1901	J. S. Stuckey	G. Liggett	Same	Columbus	51,576 50
1902	Samuel Taylor	T. L. Calvert	Same	Columbus	40,519 72
1903	T. E. Cromley	Same	Same	Columbus	49,292 75
1904	J. L. Carpenter	Same	Same	Columbus	37,632 97
1905	William Miller	Same	Same	Columbus	59,084 48

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TRANSACTIONS

OF THE

Ohio State Board of Agriculture

For the Year 1905.

Department of Agriculture,
Columbus, January 12, 1905.
5 o'clock p. m.

The following named gentlemen, members and members-elect of the Ohio State Board of Agriculture, met for organization:

William Miller, Gypsum, Ottawa County	Term expires January, 1906
Jeremiah L. Carpenter, Carpenter, Meigs County	Term expires January, 1906
Charles H. Ganson, Urbana, Champaign County	Term expires January, 1907
Alferd P. Sandles, Ottawa, Putnam County	Term expires January, 1907
Samuel Taylor, Grove City, Franklin County	Term expires January, 1908
Roldon O. Hinsdale, Wadsworth, Medina County	Term expires January, 1908
Lindley P. Bailey, Tacoma, Belmont County	Term expires January, 1909
Edwin L. Lybarger, Spring Mountain, Coshocton Co.	Term expires January, 1909
Thaddeus E. Cromley, Ashville, Pickaway County	Term expires January, 1910
Thomas L. Calvert, Selma, Clark County	Term expires January, 1910

The oath of office was administered to Messrs. Cromley and Calvert, the two re-elected members, whereupon the members were called to order by President Carpenter, who announced that the first business would be the election of a president for the ensuing year.

Mr. Lybarger nominated Mr. William Miller, and there being no further nominations the unanimous vote of the Board was cast for him and he was declared the duly elected President for the ensuing year.

Mr. Miller, on assuming the chair, expressed thanks for the honor conferred, and hoped for the same hearty aid and support that had been given his predecessor.

For Vice-President, Mr. Cromley nominated Mr. R. O. Hinsdale, who received the unanimous vote of the Board, and was declared duly elected. Responding to a call Mr. Hinsdale made a few very appropriate remarks in acceptance of the office.

For the office of treasurer, Mr. Carpenter nominated Mr. T. L. Calvert, who was unanimously elected. Mr. Calvert expressed his thanks and appreciation for the continued confidence reposed in him as member and as treasurer.

Remarks were made by Messrs. Cromley, Taylor and others, all tending to the success of the work of the Board the present year.

Mr. Sandles moved that the treasurer furnish a surety bond, in sum required by the rules ($25,000), and that the cost of same be paid from the funds of the Board. The motion was agreed to.

Mr. Calvert moved that the secretary investigate the matter of arranging for general admissions at the State Fair by means of silver coin instead of the usual tickets. The motion prevailed.

On motion of Mr. Carpenter, the Board adjourned to meet on February 20, at 3 o'clock p. m.

DEPARTMENT OF AGRICULTURE,
COLUMBUS, February 20.
3 o'clock p. m.

The board met pursuant to adjournment, with all members present. The president announced that the usual order of business would be passed, that gentlemen who were present might be given opportunity to be heard regarding requests for premium offers at the coming State Fair.

Mr. Dunlap, from a committee of horse breeders, petitioned for a class to represent American bred Percheron horses.

Mr. John R. McLaughlin made request that in the regular horse classes, under the head of "Stallion and four of his get," the words "Stallion to be shown where practicable" be stricken out. Mr. McLaughlin also made request that separate classes be made for French and German coach horses.

Mr. F. L. Postle made request that Cheviot sheep be restored to the premium classification.

Mr. R. S. Tussing made several suggestions relative to the regulation of exhibits in the Farm Products Department.

The president announced that other gentlemen interested in the premium list would be heard tomorrow morning, when, on motion, it was agreed that when a recess is taken it be until 8 o'clock Tuesday morning.

The president announced the following appointment of Standing Committees, and the assignment of State Fair departments.

EXECUTIVE COMMITTEE.

William Miller, Chairman. Thaddeus E. Cromley.
Alferd P. Sandles. Jeremiah L. Carpenter.
Samuel Taylor.

FARMERS' INSTITUTE COMMITTEE.

Thaddeus E. Cromley, Chairman.
Thomas L. Calvert.
Roldon O. Hinsdale.

AUDITING COMMITTEE.

Charles H. Ganson, Chairman.
Edwin L. Lybarger.
Lindley P. Bailey.

The members of the Board were assigned departments as follows:

First Department—Horses—C. H. Ganson.
Second Department—Cattle—L. P. Bailey.
Third Deparemtn—Sheep—E. L. Lybarger.
Fourth Department—Swine—A. P. Sandles.
Fifth Department—Poultry—A. P. Sandles.
Sixth Department—Farm Products—J. L. Carpenter.
Seventh Department—Fruits—J. L. Carpenter.
Seventh Department—Plants and Flowers—J. L. Carpenter.
Eighth Department—Machinery and Implements—R. O. Hinsdale.
Ninth Department—Mechanics and Manufacturers Products—T. E. Cromley.
Tenth Department—Merchandise, Music, Etc.—T. E. Cromley.
Eleventh Department—Woman's Work—Samuel Taylor.
Twelfth Department—Fine Arts—Samuel Taylor.

The secretary, having been appointed at a previous meeting to investigate the system of gate admissions by coin pieces instead of tickets, reported his findings and disapproval of the system for application at the State Fair.

Mr. Calvert, as chairman of the committee to revise the rules of the Board, and the rules for the organization and management of County Agricultural Societies, made report of the work of the committee. The several provisions of the rules as changed in the revision were read and discussed.

On motion a recess was taken.

8 o'clock a. m., February 21.

The Board reconvened and proceeded to further discuss the report of the Committee on Rules. A few amendments were proposed, when Mr. Sandles moved that further consideration of the report be postponed until the next meeting of the Board. Adopted.

The president announced that the revision of the premium list for the ensuing State Fair would now be taken up Many changes, and the addition of new classes, were proposed and discussed, and all petitions duly considered, resulting in the final revision of each of the separate departments being referred to the respective members in charge and the secretaries, except that for the Farm Products Department the president be added.

On motion of Mr. Cromley it was agreed that if the Ohio Shorthorn Breeders' Association shall by March 1st contribute the sum of one hundred and seventy-three dollars, the Board will add one hundred dollars and apply the amount to increasing the premium offers on Shorthorns to six hundred dollars, in order to secure the benefit of the special offer of three hundred dollars by the American Shorthorn Breeders' Association

On motion the Board adjourned to meet at the call of the President.

DEPARTMENT OF AGRICULTURE,
COLUMBUS, March 13, 1905.

The Ohio State Board of Agriculture met in special session at 1:15 o'clock p. m., having been called by President William Miller, on account of the sudden death of James W. Fleming, assistant secretary of the Board, which occurred on the 10th instant, all members being present, except Mr. Lybarger.

On motion of Mr. Cromley, the president appointed Messrs. Carpenter, Cromley and Taylor, a committee to draft resolutions on the death of Mr. Fleming. The committee immediately retired and after conferring together returned and reported the following resolutions, which were unanimously adopted by a rising vote of the Board:

Whereas, In a mysterious and providential way our esteemed friend, Hon. James W. Fleming, late Assistant Secretary of the Ohio State Board of Agriculture, has been removed from our midst; therefore,

Resolved, That it is with profound sorrow that we bow to the messenger of death which came to our departed associate suddenly and in the midst of his most ardent and strenuous pursuits.

Resolved, That as a public servant of more than forty years' service with the State Agricultural Association, Mr. Fleming has discharged all of the various and complex duties of his position with marked efficiency, fidelity and rare good judgment, and that in all the transactions of life he was ever a most genial companion, a true friend and courteous gentleman.

Resolved, That to all his associates in agricultural work, Mr. Fleming's demise comes as a personal bereavement.

Resolved, That the bereaved family of the deceased has our profound sympathy and condolence in this great sorrow, and that a copy of these resolutions be placed in the record of this Association and an engrossed copy furnished the family of the deceased.

J. L. CARPENTER, Chairman.
T. E. CROMLEY,
SAMUEL TAYLOR,
Committee.

4:30 o'clock p. m., March 13.

At 1:30 p. m. the Board took a recess to attend the funeral services of Mr. Fleming, and to reconvene immediately after their conclusion.

The Board reconvened with President Miller in the chair, and all members present, except Mr. Lybarger.

The special committee of the Board, appointed at a previous meeting to revise the rules for the organization and management of county or district agricultural societies, submitted its report, which, after being amended in some minor particulars, was adopted, and the secretary was directed to have rules published in pamphlet form for distribution to county agricultural societies.

The secretary reported that he had received four several bids for improving the Power Hall, on the State Fair Grounds, according to plans and specifications prepared by Mr. H. A. Linthwaite, architect of the Board, as follows:

Charles W. Schneider	$5,800 00
William M. Fuller	6,000 00
Charles J. Close	4,974 00
F. P. Wolfe	3,500 00

The secretary further reported that he had awarded contract to Mr. Wolfe, he being the lowest and best bidder.

Mr. C. H. Ganson, member in charge of the Horse Department of the Ohio State Fair, stated that he thought some additional box stalls should be erected in the horse exhibit building on State Fair Grounds.

On motion of Mr. Carpenter, Mr. Ganson and Secretary Miller were authorized to make such changes in the horse exhibit building as in their judgment should be made.

The Board discussed at considerable length the matter of filling the place made vacant by the death of Mr. Fleming, and on motion of Mr. Ganson the Board by unanimous vote authorized the secretary, W. W. Miller, to employ such additional assistants in the Department of Agriculture as he deemed necessary, with full authority to fix salaries.

At 6:30 o'clock p. m., on motion of Mr. Carpenter, the Board adjourned to meet on call of the president.

Archer House,
Wooster, June 21.

The Ohio State Board of Agriculture convened at the Archer House, Wooster, Ohio, at 4 o'clock p. m., on call of the president, Hon. William Miller, for the purpose of appointing expert judges for the State Fair of 1905, appointing chief of police, and the transaction of such other business as should properly be brought before the Board. All members of the Board, except Mr. Cromley, were present.

The secretary read the minutes of the last meeting of the Board, which were duly approved.

On motion of Mr. Lybarger, Mr. John J. Mahoney, of Columbus, was appointed chief of State Fair police, for 1905.

The secretary suggested the propriety of issuing "night" tickets to certain helpers in the various departments of the State Fair, to enable them to gain admission to the State Fair Grounds between the hours of 7 o'clock p. m., and 12 o'clock midnight, tickets to be issued by the members of the State Board of Agriculture in charge of the several departments, in their discretion. On motion of Mr. Ganson the matter was referred to the secretary and treasurer, with authority to act.

The secretary suggested the propriety of subdividing certain rooms in the Department of Agriculture, State House, to better accommodate the work of the Department. On motion of Mr. Lybarger, the secretary was given authority to have such alterations made as he should think advisable.

The Board entered upon the discussion of the subject of appointing expert judges for the several departments of the State Fair, and, on motion of Mr. Carpenter, it was resolved that the Board should employ two judges in the horse department, of national reputation for ability and probity, to judge class draft horses.

On motion of Mr. Lybarger, it was resolved to employ four judges of eniment ability in the cattle department.

On motion of Mr. Ganson, it was resolved to employ people of acknowledged ability and character as expert judges in all the departments of the State Fair, and to pay such per diem and expenses as will be necessary to secure the services of judges most eminent in their special lines.

At 6:30 o'clock p. m., on motion of Mr. Ganson, the Board adjourned to meet on call of the president.

After the meeting the following judges were reported by the members in charge of the various departments of the State Fair:

Mr. Ganson for the Horse Department—
  Imported Draft Horses—
    Prof. R. M. Hamer, Lafayette, Ind.
    David McKay, Ft. Wayne, Ind.
    Henry D. Snyder, Millersburg, Ohio.
  American Draft Horses—
    John Lindsey, Middleport, Ohio.
    C. Bordwell, Batavia, Ohio.
  Roadsters—
    D. L. Sampson, Cincinnati, Ohio.
    A. J. Clark, Cambridge, Ohio.

Mr Bailey for the Cattle Department—
  Beef Breeds—L. McWharton, Aledo, Ill.
  Dairy Breeds—Dr. M. A. Scovill, Lexington, Ky.

Mr. Lybarger for the Sheep Department—
    W. M. Staley, Marysville, Ohio.
    C. W. McFarland, Galion, Ohio.
    E. H. Burnham, Woodstock, Ohio.

Mr. Sandles for the Swine Department—
    A. J. Lovejoy, Roscoe, Ill.
    D. W. Brown, Union City, Ind.

Mr. Sandles for the Poultry Department—
    T. E. Orr, Beaver, Pa.

Mr. Carpenter for Fruits and Farm Products—
    C. G. Williams, Wooster, Ohio.
    M. M. Miesse, Lancaster, Ohio.
    F. P. Sperry, Columbus, Ohio.
    F. S. Miller, Columbus, Ohio.
    E. I. Burridge, Cleveland, Ohio.
    Mrs. Jacob Zimmer, Groveport, Ohio.
    S. W. Moore, Elwell, West Virginia.
    A. J. Baldwin, Newark, Ohio.

Mr. Taylor for Woman's and Fine Arts Departments—
    Mrs. C. S. Davids, Marysville, Ohio.
    Miss Berdina Ohmer, Dayton, Ohio.
    Miss Esther Brinkerhoff, Toledo, Ohio.
    Mrs. Jennie Sanders, Columbus, Ohio.
    Mrs. George E. Brittain, Dayton, Ohio.

Administration Building, State Fair Grounds,
Columbus, September 2, 1905.

The Ohio State Board of Agriculture met at 10 o'clock a. m., on call of the president, William Miller, with all members present, except Mr. Carpenter. The minutes of the last meeting of the Board were read and approved.

The secretary made detailed verbal report relative to the new buildings erected on State Fair Grounds, the improvements made to old buildings, general repairs of buildings and grounds, etc.

On motion of Mr. Ganson, the report of the secretary, covering the construction of buildings, improvements of grounds and buildings, etc., was approved by the Board.

On motion of Mr. Ganson, it was ordered that owners and drivers in the speed department of the State Fair be furnished badges entitling them to admissions at the gates during the continuance of the fair.

On motion of Mr. Lybarger, at 12 o'clock m., the Board adjourned to meet on call of the president.

Administration Building, State Fair Grounds,
Columbus, September 4, 1905.

The Ohio State Board of Agriculture met on call of the president at 4 o'clock p. m., all members being present, except Mr. Ganson.

Mr. Bailey stated that he had asked the president to call a special meeting of the Board to consider the claims made by exhibitors of certain two classes of cattle, relative to the enforcement of Rule, 24, of the Premium List. Opportunity was given the exhibitors 'of presenting their views, after which the Board considered the matter in executive session, and concluded that an established rule of the Board should not be waived during the continuance of the State Fair.

At 6 o'clock p. m., the Board adjourned to meet on call of the president.

ADMINISTRATION BUILDING, STATE FAIR GROUNDS,
Columbus, September 7, 1905.

The Ohio State Board of Agriculture met at 4:45 o'clock p .m., on call of President Miller, all members being present.

On motion of Mr. Cromley it was decided that a meeting of the Ohio State Board of Agriculture should be held at the Department of Agriculture, State House, Columbus, at 10 o'clock a. m., Tuesday, September 26, 1905, for the purpose of settling the accounts of the State Fair, establishing farmers' institutes to be held under the auspices of the Board during the institute season of 1905-1906, and appointing speakers for same.

At 5:40 o'clock p. m., the Board adjourned to meet at the call of the president.

DEPARTMENT OF AGRICULTURE,
Columbus, September 26, 1905.

As per adjournment at the last meeting, the Ohio State Board of Agriculture met at 10 o'clock a. m., with President Miller presiding and all members present, except Messrs. Hinsdale and Bailey.

The secretary read the minutes of the three last previous meetings of the Board, which were approved.

Mr. T. E. Cromley, chairman, submitted the report of the Farmers' Institute Committee, which was modified somewhat by the Board and adopted.

Mr. L. D. Eaton, of Labelle, Lawrence County, Ohio, representing the Lawrence County Agricultural Society, came before the Board and asked it to rescind the Board's action of March 10, 1904, revoking two certificates of the President of the Ohio State Board of Agriculture, issued to J. A. Bowen, President of the Lawrence County Agricultural Society, said certificates bearing date January 15, 1903, and January 14, 1904, respectively.

On motion of Mr. Carpenter the Board decided to rescind the action taken, relative to the above described certificates, March 10, 1904, and instructed the secretary to so notify the auditor of Lawrence County.

The secretary submitted a report of the receipts and disbursements to date for the fair of 1905, and, on motion of Mr. Cromley, the report was approved.

The secretary presented and read letters from some of the exhibitors of the State Fair of 1905, in which complaints were made because said exhibitors had not received second premiums on account of a provision in Rule 24, of the Premium List, that "where there is only a single exhibitor in any class the judges shall award but one premium and this may be first, second or third, according to merit."

On motion of Mr. Lybarger, the secretary was instructed to inform all exhibitors from whom he had received letters relative to the non-payment of second premiums that the Board felt it could not, in justice, violate its own rules after they had been published and entries made.

The secretary suggested that certain considerable improvements should be made on the State Fair Grounds, such as repairing and improving the water system, improving roadways, constructing additional stalls in horse exhibit building, signs on central exhibit buildings, etc.

On motion of Mr. Cromley, the matter of making improvements to State Fair Grounds and buildings was referred to the president and secretary of the Board, with power to act.

At 12:30 p. m., on motion of Mr. Ganson, the Board took a recess until 8 o'clock p. m.

Eight o'clock p. m., September 26.

At 8 o'clock p. m., the Board reconvened and proceeded to the consideration and revision of the "General Rules and Regulations" of the Board, published in the Premium List of the Ohio State Fair.

At 10 o'clock p. m., the Board adjourned to meet at the call of the president.

Department of Agriculture,
Columbus, January 9, 1906.

The Ohio State Board of Agriculture met at 10 o'clock a. m., on call of President Miller, with all members present, except Mr. Carpenter. The secretary read the minutes of the previous meeting of the Board, and they were approved.

The secretary presented and read a communication from Hon. E. L. Lybarger, tendering his resignation as member of the Board, on account of his election as a member of the General Assembly. On motion of Mr. Cromley, the Board accepted the resignation.

At 12:30 o'clock p. m., a recess was taken until 2 o'clock p. m.

At 2 o'clock p. m., the Board convened, with all members present.

The secretary presented several communications relative to suggestive changes in the premium list of the Ohio State Fair. On motion of Mr. Calvert, consideration of these was postponed until the Board should hold a meeting for the purpose of revising the premium list for the fair of 1906.

At 3:30 o'clock p. m., on motion of Mr. Calvert, the Board recessed until 2 o'clock p. m., Wednesday, the 10th instant.

Wednesday, January 10, 1906.

The Board reconvened at 2 o'clock p. m., with all members present, except Mr. Sandles.

Mr. T. L. Calvert submitted his report as treasurer of the Board, which, on motion of Mr. Ganson, was approved.

Mr. C. H. Ganson, chairman, presented and read the report of the auditing committee, which, on motion, was adopted.

At 4:40 o'clock p. m., the Board recessed to meet on call of the president.

Department of Agriculture,
Columbus, January 11, 1906.

The Ohio State Board of Agriculture met at 8 o'clock p. m., with all members present. The minutes of the previous meetings of the Board were read and approved.

There being no further business requiring the attention of the Board of 1905 on motion it adjourned.

Crop and Live Stock Statistics

AS ESTIMATED BY THE

OHIO DEPARTMENT OF AGRICULTURE

From Returns Received from its Corps of Regular Township Crop and Stock Correspondents During the Year 1905.

One of the important duties of the Department of Agriculture is the collection, compilation and distribution of monthly crop reports. These reports are based upon information received from the regular township crop and stock correspondents of the Department, numbering about fifteen hundred, and representing practically every township in the State. The correspondents are intelligent, observing farmers, and their estimates are approximately correct.

The benefits of these reports to the producer and the general public are incalculable, as by this means they are promptly informed of the conditions and prospects of the leading crops of the State and from these figures they can readily determine any under-production or over-production of the crops named. The farmer finds in them a guide as to the disposition of his crops and stock, and work of selecting succeeding crops is greatly facilitated by the knowledge he has gleaned from these publications.

Great publicity is given these monthly reports by the daily press of the State and the leading agricultural journals of the country. That the information contained may be promptly distributed, special advance sheets, giving the average totals for the State, are sent to these papers as soon as compiled. The detailed report, giving the results by counties, is issued later, being widely circulated among the farmers and others interested.

Published herein are the monthly reports which have special reference to acreage or the total estimated production for the State. Following these reports will be found tables showing wheat and corn production from 1850 to the present year, inclusive, together with the range of prices, the average prices for each year, and the same by a series of ten years; tables giving the number of live stock in the State as returned to the Auditor of State; agricultural statistics as returned to the Secretary of Agriculture by County Auditors, and ten-year comparative tables of the different crops of the State.

OFFICIAL REPORT

OF THE

OHIO DEPARTMENT OF AGRICULTURE

ON THE

CONDITION OF WHEAT

And the Distribution of the Breeds of Live Stock, March 1st, 1905.

The following report shows the average condition of wheat and the distriution of the different breeds of live stock, as estimated from the reports received from the township crop correspondents of the Department:

On the setting in of winter much uncertainy existed in regard to wheat, because it had been seeded late and had attained but small growth. However, the winter has been favorable to its protection, there being a great amount of snow that covered the fields for long periods, and there was no upheaval of the roots by alternate freezing and thawing. Many fields are still covered with snow. The roots being well set, favorable weather will cause the plant to advance rapidly, when general condition can be more satisfactorily determined. Much wheat that now appears poor may show healthy improvement, if the roots are safe. Many correspondents report the wheat as small, but appearing healthy, while some correspondents, referring more especially to wheat on the hillsides, report it as frozen.

The present estimated condition of wheat is 71 per cent. of an average. This is about the same as the estimate given on January 1.

The distribution of the pure breeds of live stock indicates increased tendency to the fixed types of animals and the discarding of chance breeds. A greater inclination than ever is being evidenced for the different pure breeds of horses, cattle, sheep and swine, thus increasing values and profits to the producers.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE CONDITION OF WHEAT AND THE DISTRIBUTION OF LIVE STOCK, MARCH 1, 1905.

Counties.	Wheat	Per Cent of the Different Breeds of Sheep.											
	Conditions compared with an average.	Merinos.	Grade Merinos.	Delaine Merinos.	Grade Delaine Merinos	French Merinos.	Grade French Merinos.	Cotswolds.	Grade Cotswolds.	Oxford Downs.	Grade Oxford Downs.	Shropshire Downs.	Grade Shropshire Downs.
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per ct
Adams	70	13	8	14	4	....	1	5	1	2	2	3	7
Allen	80	4	5	9	7	1	2	....	....	1	2	6	35
Ashland	56	5	1	4	19	....	....	2	....	....	....	4	22
Ashtabula	79	7	8	....	2	....	....	5	6	3	....	18	10
Athens	71	1	20	10	41	....	....	....	....	....	....	....	1
Auglaize	76	1	1	....	....	....	....	2	....	1	....	24	5
Belmont	66	32	12	2	5	....	3	....	....	....	....	5	2
Brown	71	....	1	1	10	....	....	2	1	6	1	7	26
Butler	80	3	....	....	....	....	....	10	2	18	....	....	....
Carroll	68	10	20	8	26	1	....	1	....	....	....	2	10
Champaign	70	11	3	1	2	8	8	1	2	....	....	9	11
Clark	70	2	11	....	....	1	2	....	2	....	....	4	34
Clermont	65	1	9	....	1	....	....	7	15	2	6	5	5
Clinton	76	11	15	15	5	....	....	3	9	....	....	5	7
Columbiana	67	3	15	4	12	....	....	2	6	....	1	7	10
Coshocton	73	9	27	3	16	....	1	....	....	....	2	5	8
Crawford	76	4	11	2	17	....	....	1	....	....	....	6	31
Cuyahoga	81	1	4	....	2	....	....	3	8	1	....	9	16
Darke	62	4	1	....	....	....	....	6	2	1	....	13	6
Defiance	89	10	11	....	....	....	....	....	4	....	25	13	12
Delaware	80	11	23	7	9	....	....	2	3	....	2	7	14
Erie	78	3	9	5	4	....	....	1	4	1	10	3	8
Fairfield	61	5	18	5	6	....	....	3	1	2	....	13	10
Fayette	66	5	13	2	2	....	....	....	....	2	2	22	15
Franklin	77	13	13	3	2	....	....	3	1	3	5	4	4
Fulton	83	1	7	2	9	....	....	....	1	1	3	7	30
Gallia	50	8	28	2	2	....	....	5	1	....	....	19	6
Geauga	78	2	13	....	....	1	2	5	8	....	....	16	39

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE CONDITION OF WHEAT AND THE DISTRIBUTION OF LIVE STOCK, MARCH 1, 1905—Concluded.

Counties.	Wheat.	Per Cent of the Different Breeds of Sheep.											
	Conditions compared with an average.	Merinos.	Grade Merinos.	Delaine Merinos.	Grade Delaine Merinos.	French Merinos.	Grade French Merinos.	Cotswolds.	Grade Cotswolds.	Oxford Downs.	Grade Oxford Downs.	Shropshire Downs.	Grade Shropshire Downs.
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per ct
Greene	65	40	10	....	5	10	....	10	....	....	....	....	....
Guernsey	65	12	41	....	9	3	1	....	....	....	....	....	2
Hamilton	76	....	....	....	....	....	....	....	3	....	2	20	17
Hancock	78	3	19	5	10	....	1	....	....	....	....	5	32
Hardin	79	6	7	2	3	2	....	5	2	4	2	22	1
Harrison	72	8	27	22	21	....	....	....	1	....	....	3	4
Henry	93	1	1	....	....	....	....	26	26	....	....	5	7
Highland	65	3	5	3	7	....	....	3	1	3	2	8	17
Hocking	70	7	16	5	12	....	....	....	....	....	....	2	2
Holmes	73	5	7	3	6	1	1	3	....	....	2	9	27
Huron	77	4	6	6	17	....	1	1	1	1	1	8	13
Jackson	57	11	2	....	2	....	....	1	1	....	....	14	16
Jefferson	54	35	22	2	4	....	....	6	....	....	....	9	2
Knox	69	3	11	3	31	....	....	2	1	....	....	2	13
Lake	78	22	19	....	....	....	....	6	3	....	....	7	25
Lawrence	44	3	....	....	....	....	....	3	....	....	....	17	....
Licking	73	22	18	2	16	....	....	1	1	....	....	4	12
Logan	59	3	13	12	11	1	2	1	3	1	2	3	18
Lorain	64	5	11	3	7	....	1	3	11	....	1	9	25
Lucas	97	10	....	....	....	....	....	3	....	....	....	47	15
Madison	60	8	20	2	5	....	....	3	4	....	....	10	12
Mahoning	70	8	34	6	....	....	....	....	13	....	....	....	14
Marion	65	9	9	7	11	....	....	3	4	1	....	12	14
Medina	72	3	11	13	15	....	....	1	2	1	12	10	8
Meigs	59	9	14	10	11	1	4	2	3	....	....	4	14
Mercer	74	....	1	....	....	....	....	....	2	1	1	8	56
Miami	68	2	2	1	....	2	....	....	....	2	2	4	16
Monroe	62	18	9	4	6	....	....	....	....	....	....	....	....

Montgomery	68	......	......	......	......	......	......	......	......	......	27	7	30
Morgan	72	7	32	7	29	2	2	......	3	......	......	......	3
Morrow	77	9	24	9	23	2	1	3	1	1	2	2	8
Muskingum	60	6	39	6	12	......	......	2	......	......	......	4	2
Noble	77	9	7	24	29	2	......	7	......	......	......	2	2
Ottawa	84	7	20	......	......	......	......	8	......	......	......	......	......
Paulding	72	1	1	......	5	......	......	......	......	......	1	8	25
Perry	74	9	14	11	16	......	......	1	1	1	......	1	9
Pickaway	73	6	19	......	2	......	......	2	1	......	......	15	19
Pike	65	20	......	......	......	......	......	20	......	......	......	......	......
Portage	76	3	9	2	6	......	2	......	8	......	2	......	8
Preble	72	......	......	......	......	......	......	2	4	7	18	2	18
Putnam	71	2	5	......	3	......	......	3	6	......	4	5	10
Richland	66	3	8	10	21	1	......	4	6	......	1	7	17
Ross	65	10	5	1	2	......	2	2	......	7	2	2	13
Sandusky	73	5	15	......	......	......	......	11	......	......	......	36	9
Scioto	69	12	5	......	......	5	......	3	5	5	......	1	9
Seneca	72	3	4	9	5	......	1	10	3	......	8	12	13
Shelby	80	......	......	......	......	3	......	......	......	......	......	......	......
Stark	68	10	7	3	2	......	......	6	3	6	2	2	5
Summit	72	2	4	1	3	......	......	......	1	......	......	15	23
Trumbull	78	2	23	1	2	......	......	6	1	......	......	5	24
Tuscarawas	76	6	12	6	6	......	......	......	......	1	1	8	19
Union	70	8	22	5	7	2	14	......	......	......	5	8	15
Van Wert	81	3	7	......	......	......	......	1	4	......	......	12	47
Vinton	52	22	45	1	2	......	......	......	......	......	......	......	......
Warren	68	9	3	......	......	1	......	1	5	11	7	3	1
Washington	65	5	22	3	10	......	......	......	......	......	......	6	1
Wayne	70	4	16	2	4	......	......	3	6	......	1	12	17
Williams	88	......	1	3	6	......	......	......	......	3	5	16	44
Wood	75	11	5	4	6	......	......	6	......	......	1	16	9
Wyandot	75	4	17	7	12	......	......	......	1	1	1	16	6
Average per cent	71	7.31	11.75	4.04	7.11	.58	.60	2.88	2.47	1.16	2.00	7.97	13.19

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE CONDITION OF WHEAT AND THE DISTRIBUTION OF LIVE STOCK, MARCH 1, 1905—Continued.

Counties.	Per Cent of the Different Breeds of Sheep.												
	Hampshire Downs.	Grade Hampshire Downs.	South Downs.	Grade South Downs.	Lincolns.	Grade Lincolns.	Leicesters.	Grade Leicesters.	Dorset Horned	Grade Dorset Horned.	Other Pure Breeds.	Grades of Other Pure Breeds.	Mixed Bloods.
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per ct
Adams			16	8								1	15
Allen	1	2		2									23
Ashland			5	1			2						35
Ashtabula			4	9					1			4	23
Athens												2	20
Auglaize	1	5	4			1							55
Belmont			5	12								13	9
Brown			5										40
Butler	3		45	2									17
Carroll		2		1								2	17
Champaign				2	1	2	2			1	1	2	33
Clark			9	10			2	5					18
Clermont	6		1	3	1								38
Clinton													30
Columbiana			2	5								1	32
Coshocton			1	3							1		24
Crawford				1									27
Cuyahoga			11	10		1	1		1				32
Darke			13	8	5	1		1			4	2	32
Defiance			2										23
Delaware			2	3		1			1	1			14
Erie				1			1	3					47
Fairfield			5	3			1						28
Fayette	5	5	8	2								2	15
Franklin			5	9	1								34
Fulton					1	2						15	21
Gallia			9										20
Geauga								1					13

Greene							5						
Guernsey			2	2								4	14
Hamilton			15										43
Hancock			1	3		1				1			19
Hardin		3		1			2				10		28
Harrison			1	1									12
Henry			5	7									22
Highland		1	5	6	1	1					1		33
Hocking			2	5									49
Holmes		1	3	14		1					1		16
Huron	1		1								2	3	34
Jackson			16	8					7				22
Jefferson			7	2					1		1		9
Knox			3	4									27
Lake			1	1									16
Lawrence		42	12						3		3		17
Licking			2	3									19
Logan			1	8	1	1					1		18
Lorain									1		1	2	20
Lucas													25
Madison				3							1		32
Mahoning				1				1				5	19
Marion	1		1	1		1							26
Medina			1							1		4	18
Meigs			2	3							1	2	20
Mercer				6								4	21
Miami	2		11	20	4				2				30
Monroe			2				1					10	50
Montgomery	4	5	10	15									2
Morgan			1	2		1		1					10
Morrow				1									14
Muskingum			4	4									21
Noble			2	2			2	2					10
Ottawa												8	57
Paulding												1	58
Perry													37
Pickaway			2	2								15	17
Pike			20										40
Portage			4	2									54
Preble	2		8	6							2		31
Putnam			7	11							2	6	36
Richland			2	5						1			14
Ross			9	2	3				1		3		36
Sandusky				2									22
Scioto			15	5									35
Seneca			2	8								5	17
Shelby			30				15						52
Stark			7	3	1	1	1	1					40
Summit												5	46
Trumbull			2	3		1			2			2	26
Tuscarawas				1								1	39
Union												8	6
Van Wert			7	4		1							14
Vinton													30

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE CONDITION OF WHEAT AND THE DISTRIBUTION OF LIVE STOCK, MARCH 1, 1905—Continued.

Counties.	Per Cent of the Different Breeds of Sheep												
	Hampshire Downs	Grade Hampshire Downs.	South Downs	Grade South Downs.	Lincolns	Grade Lincolns	Leicesters	Grade Leicesters	Dorset Horned	Grade Dorset Horned	Other Pure Breeds	Grades of Other Pure Breeds.	Mixed Bloods
	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per ct
Warren	....	....	20	12	2	....	....	....	....	1	2	1	21
Washington	....	3	1	2	....	2	1	3	....	....	....	....	41
Wayne	....	....	7	6	....	1	....	....	....	....	....	....	21
Williams	1	1	....	....	....	....	....	....	....	....	....	....	20
Wood	....	5	5	6	....	....	....	....	....	....	....	....	26
Wyandot	....	7	1	1	1	3	....	....	....	....	....	6	16
Average per acre	.31	.95	4.65	3.42	.25	.27	.42	.21	.23	.07	.43	1.55	26.18

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE CONDITION OF WHEAT AND THE DISTRIBUTION OF LIVE STOCK, MARCH 1, 1905—Continued.

Counties.	Per Cent. of the Different Breeds of Cattle.						Per Cent. of the Different Breeds of Swine.									
	Guernseys.	Holsteins.	Polled Jerseys.	Other Pure Breeds.	Grades.	Natives.	Berkshires.	Poland Chinas.	Chester Whites.	Duroc Jerseys.	Victorias.	Suffolks.	Yorkshires.	Essex.	Cheshires.	Mixed or Unknown.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
Adams	....	1	....	3	42	17	6	48	9	4	1	....	....	....	....	32
Allen	....	....	....	....	52	5	7	34	12	16	1	....	1	....	1	28
Ashland	....	4	....	....	44	22	10	24	15	5	....	5	....	2	1	38
Ashtabula	1	15	....	2	32	16	14	20	29	1	1	1	1	....	4	29
Athens	....	....	....	....	64	4	3	45	30	5	....	....	....	....	....	17
Auglaize	....	5	....	....	28	41	5	23	8	16	....	....	1	....	....	47
Belmont	....	2	....	....	59	7	7	25	24	4	....	....	....	....	....	40
Brown	....	3	....	....	29	18	3	47	8	15	....	....	....	....	....	27
Butler	1	2	....	1	13	28	3	54	9	26	....	....	....	....	....	8
Carroll	1	2	....	....	52	12	10	35	25	1	....	....	....	1	....	28
Champaign	1	2	1	1	33	19	8	30	10	13	1	1	6	6	....	25
Clark	1	2	3	2	35	14	4	29	16	16	....	....	....	....	....	35
Clermont	....	1	1	....	65	10	....	57	11	7	....	....	....	....	....	25
Clinton	....	3	....	....	39	23	2	30	13	19	....	....	....	....	....	36
Columbiana	1	9	....	2	50	11	10	24	20	3	....	....	....	....	....	43
Coshocton	....	1	....	1	49	28	9	30	10	1	....	1	1	....	....	48
Crawford	....	3	....	3	43	25	7	31	14	12	1	....	....	....	....	35
Cuyahoga	1	18	....	1	38	27	7	7	20	....	....	3	4	....	....	59
Darke	....	2	....	3	25	31	5	36	12	17	....	....	....	....	....	30
Defiance	....	3	....	....	47	14	8	27	7	12	....	....	....	....	....	46
Delaware	....	1	....	1	36	6	9	37	14	9	....	....	1	....	....	31
Erie	1	6	....	....	42	38	7	17	24	3	1	1	2	....	....	45
Fairfield	....	2	....	....	34	14	16	37	16	10	....	....	....	....	....	21
Fayette	....	1	....	....	59	....	5	31	2	12	....	....	2	....	....	48
Franklin	1	3	....	1	27	14	12	34	15	10	....	....	....	1	....	28
Fulton	....	5	....	....	41	38	3	29	11	13	....	....	....	....	....	44
Gallia	....	2	....	....	19	36	4	21	20	5	....	....	....	....	....	50
Geauga	....	26	....	....	28	33	10	5	19	....	....	1	1	....	2	62

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE CONDITION OF WHEAT AND THE DISTRIBUTION OF LIVE STOCK, MARCH 1, 1905—Continued.

Counties.	Per Cent. of the Different Breeds of Cattle.						Per Cent. of the Different Breeds of Swine.									
	Guernseys.	Holsteins.	Polled Jerseys.	Other Pure Breeds.	Grades.	Natives.	Berkshires.	Poland Chinas.	Chester Whites.	Duroc Jerseys.	Victorias.	Suffolks.	Yorkshires.	Essex.	Cheshires.	Mixed or Unknown.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
Greene	5	....	5	....	40	10	10	20	5	50	....	....	....	....	....	15
Guernsey	....	2	....	....	31	12	11	33	19	4	....	....	....	....	1	32
Hamilton	3	....	....	....	38	39	7	38	5	12	....	....	....	....	....	38
Hancock	....	2	....	....	44	23	13	49	9	8	....	....	1	....	....	20
Hardin	....	5	....	2	47	23	7	26	11	15	....	....	....	....	....	51
Harrison	....	2	....	....	39	11	10	60	12	1	....	....	....	....	....	27
Henry	....	4	....	....	28	44	7	33	8	8	....	....	....	....	....	44
Highland	....	2	....	1	35	30	7	27	7	17	....	....	1	....	....	41
Hocking	....	1	1	3	33	37	7	24	28	1	....	....	....	....	....	40
Holmes	....	4	3	....	39	17	12	19	14	11	....	....	....	....	....	44
Huron	....	2	....	....	53	7	8	30	16	2	....	3	1	....	....	40
Jackson	....	1	....	....	26	22	9	21	19	1	....	....	....	....	....	50
Jefferson	1	6	....	2	27	5	16	47	23	2	....	....	1	....	1	10
Knox	....	1	....	....	60	13	10	34	9	7	....	....	....	....	....	40
Lake	1	5	....	....	47	20	10	8	20	2	....	....	1	....	....	59
Lawrence	....	5	....	....	18	25	1	47	15	1	....	....	1	1	1	33
Licking	....	3	....	....	34	11	14	44	11	10	....	....	....	....	....	21
Logan	1	1	....	....	48	5	6	38	13	13	....	....	1	....	1	28
Lorain	....	15	1	2	40	17	12	15	14	2	1	1	7	....	....	48
Lucas	....	24	2	6	40	6	15	38	12	11	....	....	3	....	....	21
Madison	....	....	....	4	48	13	2	50	5	21	....	....	....	....	....	22
Mahoning	....	3	....	2	25	25	25	18	17	....	....	....	....	....	....	40
Marion	....	4	....	....	36	16	8	43	14	8	1	....	....	....	....	26
Medina	....	14	....	3	53	12	7	10	28	1	....	1	4	....	....	49
Meigs	1	....	....	3	42	15	12	37	25	2	....	....	....	2	....	22
Mercer	....	....	....	....	43	24	6	26	14	10	....	....	....	....	....	44
Miami	....	3	....	2	29	26	4	39	13	11	1	1	1	1	....	29
Monroe	....	8	1	2	9	37	9	36	19	....	....	....	....	....	....	36

Montgomery		3	2		50		10	60	30							
Morgan					38	11	7	39	18						1	35
Morrow		1			46	15	4	29	19	9			1			38
Muskingum		1			50	10	14	40	12	3			1		1	29
Noble		2		4	38	11	7	30	17	4						42
Ottawa		2	1		20	63	5	25	6	3			1			60
Paulding		2			24	45	7	42	11	10						30
Perry	1	1			43	25	19	24	8	2		1				46
Pickaway					50	10	10	52	7	8						23
Pike		10		2	2	18	18	35	12	5						30
Portage		16		1	42	22	14	14	25	1						46
Preble		2			29	23	2	42	19	22						15
Putnam		2		1	50	16	8	37	12	14			1			28
Richland		6			49	10	9	29	18	5						39
Ross		4			25	15	14	34	6	17						29
Sandusky		5		20	32	5	6	36	9	20			2			27
Scioto		11	1	1	12	30	20	27	13	2		3	4	2		29
Seneca		5		6	24	16	8	40	17	14						21
Shelby	4	8			26	17	4	55	7	16						18
Stark	1	9	1	4	51	14	13	20	13	1		1	2	1	1	48
Summit	1	12			21	46	10	15	15				5			55
Trumbull	1	10			37	20	26	23	19						2	30
Tuscarawas		4			40	29	16	26	17	3						38
Union		5	6		28	24	3	16	8	13		2	16	6	1	35
Van Wert	1	4		3	36	17	12	25	12	21						30
Vinton				3	64	9	4	31	18	1						46
Warren		8			19	14		48	9	18						25
Washington		3			31	34	4	25	15							56
Wayne	1	11		1	23	26	19	26	23	4	2					26
Williams		5		1	38	23	4	26	11	10						49
Wood		8			16	26	8	45	11	9			3		4	20
Wyandot		1		2	60	2	9	48	10	8						25
Average per cent	.35	4.57	.33	1.16	37.40	19.80	8.76	32.26	14.47	8.26	.10	.28	.84	.24	.23	34.56

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE CONDITION OF WHEAT AND THE DISTRIBUTION OF LIVE STOCK, MARCH 1, 1905—Continued.

Counties.	No. of townships reported.	*Number of Stallions.						Per Cent. of the Different Breeds of Cattle.							
		Thoroughbreds (running horses).	Trotting stock.	French draft.	English draft.	Other pure breeds.	Unknown breeding.	Shorthorns.	Herefords.	Devons.	Polled Durhams.	Aberdeen Angus.	Red Polls.	Galloways.	Jerseys.
	No.	No.	No.	No.	No.	No.	No.	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per ct
Adams	8	....	4	3	....	2	3	21	....	....	....	1	1	....	14
Allen	4	....	6	9	3	....	....	14	6	....	5	....	5	....	13
Ashland	5	....	1	1	3	....	1	19	....	1	....	....	2	....	8
Ashtabula	13	1	7	7	3	4	5	15	1	....	1	....	1	....	16
Athens	3	....	....	1	11	....	1	17	2	....	....	....	....	....	13
Auglaize	5	6	5	11	5	4	12	12	2	....	2	....	2	1	7
Belmont	5	2	4	5	2	3	2	9	....	2	2	....	1	....	18
Brown	6	1	3	2	2	5	9	24	1	....	2	1	2	....	20
Butler	6	....	3	3	2	4	6	9	2	1	3	....	17	1	22
Carroll	7	....	13	6	2	....	4	21	....	....	1	....	1	....	10
Champaign	8	3	22	16	2	6	11	15	....	1	1	2	1	1	22
Clark	4	....	6	4	3	....	3	14	2	....	3	5	3	1	15
Clermont	5	....	1	1	1	2	1	6	....	....	1	1	2	....	13
Clinton	5	2	15	3	3	1	8	17	....	....	....	3	....	....	15
Columbiana	11	....	13	8	1	6	9	8	....	....	1	....	3	....	15
Coshocton	7	....	2	3	1	2	5	8	....	1	....	5	2	....	5
Crawford	7	1	2	3	3	6	4	12	1	1	2	3	....	....	7
Cuyahoga	8	....	7	1	....	2	2	2	1	1	1	....	1	....	9
Darke	10	3	11	17	10	....	25	15	1	....	5	....	1	....	17
Defiance	10	....	1	10	4	6	8	16	5	2	3	....	2	1	7
Delaware	8	1	21	17	3	2	6	18	2	....	7	4	4	....	21
Erie	7	....	3	4	2	1	2	3	....	1	1	2	....	....	6
Fairfield	11	1	17	7	10	4	8	24	1	....	2	6	3	....	14
Fayette	5	1	7	2	1	2	7	22	8	....	1	3	....	....	6
Franklin	11	....	15	8	1	4	2	19	1	1	9	2	2	....	20
Fulton	9	....	6	6	7	7	6	5	1	....	2	....	1	1	6
Gallia	5	....	1	3	....	2	2	8	5	....	3	1	6	....	20
Geauga	6	....	4	9	3	....	....	3	1	2	....	....	....	....	7

Greene	1		15	5		5		10	5			10	5		10
Guernsey	8		3	2	1	1	6	19	6	2	3	7	2		16
Hamilton	3						2								20
Hancock	10	2	3	4	2	6	4	18	2	1	1	1	2	1	5
Hardin	6		3	10		5	3	9	2		2	1	2	2	5
Harrison	13		9	19	5	1		30	2		1	2			13
Henry	4		1	3	2	2	3	7	2	2	5	3	1		4
Highland	15	4	12	9	4	9	27	17	2		1	3			9
Hocking	4				1			8	1		1		6		9
Holmes	4	1	5	3	2	1	3	23	1		2		1		10
Huron	8	1	3	4		1	3	17	3	1	3	5	1		8
Jackson	8	1	5	3	1		5	20			4	3	8		16
Jefferson	7	7	7	6	7	5	2	42	2			1			14
Knox	11		6	6	1	4	4	10	1		3	2	2		8
Lake	4		4	1	2	1	5	9	1		2		2		13
Lawrence	5	2	6				6	10				5	3		34
Licking	11	4	17	10	15	22	10	29	1	1	1	1	1		18
Logan	16		14	21	15	3	7	21	1		6	2	1		14
Lorain	9	3	7	13	5	7	14	9	2						14
Lucas	4	2		2	1		12	9	5		4				4
Madison	5	1	6	15	1	6	10	24				1	1	1	8
Mahoning	2		4	3	1	1	2	13		12					20
Marion	13		11	14	4	1	7	26	5		2	3	2		6
Medina	6	1	3	2	5	2	10	5					1		12
Meigs	3		2	2	2	3	9	20	7		2				10
Mercer	6	1	14	10	2	1	13	21				1	5	1	5
Miami	8		11	10	1	1	6	19	2		3		5		11
Monroe	6	5	7	2		4	6	21	5	3			1		13
Montgomery	1			2				5	2		1	2	5		30
Morgan	12	2	7	10	6		11	33	4	3	1	1			9
Morrow	8		16	11	6		4	25			3		1		9
Muskingum	17	1	9	7	2	13	8	20	1	2	1	3	2		10
Noble	7	4	1	4	2	6	10	19	2	1	4	4			15
Ottawa	4		2				1				1		1		12
Paulding	7	3		1		3	11	13	1		2		1	1	11
Perry	11		4	8	2	1	6	15		2	1	2	2		8
Pickaway	5	1	19	4	2		10	24			1	2	1		12
Pike	2		1	1	2		2	40					5		23
Portage	10	1	8	3	3	1	4	10							9
Preble	7		8	1	5	3	7	23		1	5	2	3		12
Putnam	7		2	12	3	4	7	9	2	3	7	2	2	1	5
Richland	7		5	6	2		8	13	3	1	2	2	3		11
Ross	8	3	5	6	4	1	9	20		4	2	3	11	1	15
Sandusky	5	2	3	8	4	6	5	12	6		6	4	2		8
Scioto	8		3	2	5	1	3	9		1					35
Seneca	9	1	6	6	8	5	6	35	1		2	1			10
Shelby	5		5	12	6	3	5	9	3		13	1	5		14
Stark	6	1	9	5	3	3	8	9	1						10
Summit	9		4	1	1	1	3	7							11
Trumbull	13		13	5	5	4	4	17	1		1	1			12
Tuscarawas	16		6	9		3	13	12			1	1	3		10
Union	4		8	4		2		12			3		3		19
Van Wert	8	3	6	14	26		7	18	2		3	1	4		11
Vinton	7		3	1	1	2	2	13				1	1		9

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE CONDITION OF WHEAT AND THE DISTRIBUTION OF LIVE STOCK, MARCH 1, 1905—Concluded.

Counties.	No. of townships reported.	*Number of Stallions.						Per Cent. of the Different Breeds of Cattle.							
		Thoroughbreds (running horses).	Trotting stock.	French draft.	English draft.	Other pure breeds.	Unknown breeding.	Shorthorns.	Herefords.	Devons.	Polled Durhams.	Aberdeen Angus.	Red Polls.	Galloways.	Jerseys.
	No.	No.	No.	No.	No.	No.	No.	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per ct
Warren	7	1	18	2	8	7	7	18	1	....	1	3	2	....	34
Washington	12	....	5	5	1	4	9	11	8	2	....	....	1	....	10
Wayne	11	....	8	3	3	1	9	15	3	1	1	....	2	....	16
Williams	8	....	6	6	6	15	5	19	3	....	3	....	1	....	7
Wood	8	....	7	4	3	....	7	13	5	....	1	11	2	1	17
Wyandot	9	2	19	19	5	6	3	22	....	....	3	....	1	1	8
Totals..........	657	82	594	541	292	262	525	....	....	....	....	....	....	....	....
Average per ct.	....	....	....	....	....	....	....	15.48	1.71	.65	1.97	1.55	2.04	.18	12.81

*The number of stallions as given in the table are those reported from 657 townships of the state, and does not, therefore represent the approximate number of each county or for the state

OFFICIAL REPORT

OF THE

OHIO DEPARTMENT OF AGRICULTURE

ON THE

ACREAGE AND CONDITION OF CROPS AND LOSSES TO LIVE STOCK, MAY 1 1905.

The following report represents the estimated area and condition of the crops named, as based upon the returns received from the regular township crop correspondents of the Department, every county and nearly every township of the state being represented in the returns.

WHEAT—Condition compared with an average	90 per cent.
SPRING BARLEY—Area sown compared with last year	81 per cent.
WINTER BARLEY—Condition compared with an average	84 per cent.
BARLEY—Total area.	
Sown last fall	36 per cent.
Sown this spring	64 per cent.
RYE—Condition compared with an average	91 per cent.
OATS—Area for 1904 as returned by township assessors	1,381,998 acres.
" Area sown this year compared with 1904	92 per cent.
" Estimated area for the harvest of 1905	1,267,582 acres.
WHEAT—Damaged by Hessian fly	1.4 per cent.
" Damaged by other insects	0.7 per cent.
CLOVER—Average date of seeding	March 24.
" Acreage sown compared with last year	91 per cent.
HORSES—Losses during winter and spring	1.8 per cent.
CATTLE—Losses during winter and spring	1.5 per cent.
SHEEP—Losses during winter and spring	2.5 per cent.
HOGS—Losses during winter and spring	2 per cent.
BERRIES—Prospects compared with an average	84 per cent.

The condition of wheat at the present time is very promising and the report this month shows the plant to be 37 points higher, compared with a full average, than was the crop of last year at this time. If the present condition is maintained a high average product per acre will result, although as a whole the total product will be far short of a full average, owing to the light acreage sown.

Weather conditions during the early part of April were unfavorable to the growth of the plant, but during the middle and latter part of the month warm weather and frequent showers were very beneficial, and wheat now shows 90 per cent. of a full average, a gain of 6 points since April 1.

The oats area reported at this time is not equal to that of last year, but many fields have not yet been sown, owing to the wet condition of the ground. Last year the area seeded was abnormally large, owing to the fact that 17 per cent. of the wheat seeded was plowed up in the spring, and a large percentage of these fields was sown to oats. The total area reported is 1,267,582 acres. This is 114,416 acres less than reported by the township assessors last year.

Plowing for corn is quite general throughout the state, but the work has been retarded in some places by the heavy rains.

Winter barley shows 84 per cent. of a full average, and rye is reported at 91 per cent. of an average.

The losses among live stock during the winter and spring were comparatively small.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE ACREAGE AND CONDITION OF CROPS AND LOSSES TO LIVE STOCK, MAY 1, 1905.

Counties.	Wheat.	Spring Barley.	Winter Barley	Barley—Total area.		Rye.	Oats.			Wheat.		Clover.		Horses	Cattle	Sheep	Hogs	Berries
	Condition compared with an average.	Area sown compared with last year.	Condition compared with an average.	Sown last fall.	Sown this spring.	Condition compared with an average.	Area for 1904 as returned by township assessors.	Area sown this year compared with 1904.	Estimated area for the harvest of 1905.	Damage by Hessian fly.	Damage by other insects.	Average date of seeding. Days after Feb. 15.	Acreage sown compared with last year.	Losses during winter and spring.	Losses during winter and spring.	Losses during winter and spring.	Losses during winter and spring.	Prospect compared with an average.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Acres.	Per ct.	Acres.	Per ct.	Per ct.	Days.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct
Adams	84	....	....	....	....	82	4,703	90	4,233	1	....	21	90	1	2	2	1	71
Allen	99	75	....	....	100	100	12,735	91	11,589	1	....	35	95	1	1	1	3	88
Ashland	81	38	70	73	27	72	17,912	100	17,912	4	3	31	83	5	4	5	4	75
Ashtabula	95	53	....	....	100	90	19,589	100	19,589	1	1	51	87	2	1	2	1	100
Athens	80	....	....	....	....	....	1,516	93	1,410	2	2	32	95	....	....	3	1	82
Auglaize	88	100	....	....	100	92	21,344	82	17,502	3	....	36	73	2	2	3	2	72
Belmont	92	100	....	45	55	85	9,964	100	9,964	2	2	26	82	2	1	4	4	68
Brown	95	....	....	....	....	97	8,917	87	7,758	4	4	14	92	3	2	1	3	77
Butler	94	100	83	98	2	95	13,271	81	10,750	....	....	31	81	2	2	3	2	88
Carroll	91	....	....	....	....	88	11.759	98	11,524	3	1	38	93	1	2	5	1	85
Champaign	94	78	70	20	80	93	29,750	93	27,668	....	....	46	87	4	4	5	7	70
Clark	90	100	....	....	100	89	15,886	94	14,933	1	....	30	94	1	1	2	2	91
Clermont	100	....	....	....	....	95	13,500	97	13,095	....	2	23	88	2	1	2	2	87
Clinton	94	....	....	....	....	94	9,730	94	9,146	1	1	33	96	1	1	1	1	88
Columbiana	90	....	....	....	....	82	18,782	100	18,782	....	....	41	93	1	....	1	....	92
Coshocton	90	....	....	....	....	78	11,655	90	10.490	3	1	40	94	3	2	4	2	85
Crawford	98	95	100	45	55	97	25,899	94	24,345	1	1	40	97	2	2	3	2	92
Cuyahoga	100	....	....	....	....	97	14,065	92	12,940	....	....	41	101	3	3	2	2	90
Darke	89	68	76	35	65	88	40,253	74	29,788	2	1	46	90	3	2	2	3	84
Defiance	96	86	....	....	100	94	24,316	89	21,641	1	....	40	95	1	1	2	1	68
Delaware	92	....	....	....	....	77	12,507	86	10,756	1	1	29	81	1	2	3	2	83
Erie	94	94	....	....	100	92	14,134	94	13,286	1	....	40	95	1	1	2	1	91
Fairfield	79	....	....	....	....	83	5,977	82	4,901	1	1	31	90	3	2	3	4	80
Fayette	94	....	....	....	....	98	10,658	90	9,592	1	....	28	93	2	1	3	4	91
Franklin	90	....	....	....	....	92	17,443	94	16,396	2	1	43	90	2	2	3	2	77
Fulton	100	95	....	....	100	100	26,533	83	22,022	....	....	43	103	1	2	1	2	97
Gallia	89	70	65	....	....	82	2,379	96	2.284	3	....	20	81	1	1	3	1	80
Geauga	95	100	95	10	90	100	12,568	100	12,568	....	....	48	90	3	4	1	....	97

Counties.	Wheat.	Spring Barley.	Winter Barley	Barley—Total area.		Rye.	Oats.			Wheat.		Clover.		Horses	Cattle	Sheep	Hogs	Berries
	Condition compared with an aveage.	Area sown compared with last year.	Condition compared with an average.	Sown last fall.	Sown this spring.	Condition compared with an average.	Area for 1904 as returned by township assessors.	Area sown this year compared with 1904.	Estimated area for the harvest of 1905.	Damage by Hessian fly.	Damage by other insects.	Average date of seeding. Days after Feb. 15.	Acreage sown compared with last year.	Losses during winter and spring.	Losses during winter and spring.	Losses during winter and spring.	Losses during winter and spring.	Prospect compared with an average.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Acres.	Per ct.	Acres.	Per ct.	Per ct.	Days.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct
Greene	81	50	85	40	60	87	8,871	64	5,677	....	....	31	103	2	2	3	2	75
Guernsey	90	....	....	....	....	98	6,253	90	5,628	2	....	38	88	3	3	5	1	94
Hamilton	87	....	90	100	....	92	3,676	94	3,455	....	....	32	96	1	2	2	3	73
Hancock	87	62	80	14	86	90	22,825	84	19,173	1	1	45	94	2	2	2	3	90
Hardin	84	83	70	15	85	91	18,565	86	15,966	1	....	40	96	2	2	4	2	82
Harrison	80	....	....	....	....	77	6.869	99	6,800	1	....	34	88	2	1	4	1	94
Henry	80	78	70	12	88	89	31,446	95	29,874	1	....	45	79	3	2	1	3	64
Highland	88	....	....	....	....	83	5,608	91	5,103	2	1	23	94	2	2	4	4	86
Hocking	93	....	....	....	....	96	2,683	99	2,656	4	1	31	83	2	3	4	3	80
Holmes	78	90	90	75	25	100	16,958	95	16,110	5	....	23	95	4	5	5	6	90
Huron	98	80	90	55	45	96	27,264	85	23,174	....	....	44	85	2	2	3	2	94
Jackson	73	....	....	....	....	83	1,354	96	1,300	1	1	25	83	1	....	2	1	88
Jefferson	81	....	....	....	....	81	10,355	95	9.837	2	1	45	91	1	1	2	....	85
Knox	94	....	....	....	....	89	10,995	96	10,555	2	....	39	92	2	1	3	1	93
Lake	94	100	....	100	....	100	7,367	97	7,146	....	....	36	90	2	1	....	....	100
Lawrence	90	....	....	....	....	100	3,671	100	3,671	....	....	30	100	....	1	....	....	88
Licking	93	....	....	....	....	88	13,301	93	12,370	1	1	44	92	2	1	2	1	87
Logan	88	100	100	10	90	92	21,768	**78**	**16,979**	1	1	48	95	1	1	2	2	83
Lorain	95	100	75	37	63	93	21,904	89	19,495	1	1	43	90	1	1	2	....	89
Lucas	95	75	....	25	75	98	16,277	100	16,277	3	....	45	88	3	1	2	5	100
Madison	86	95	....	....	100	91	32,502	96	31,202	1	1	44	91	2	1	2	4	92
Mahoning	97	....	....	....	....	95	15,408	100	15,408	5	2	47	93	4	2	4	2	92
Marion	90	10	....	....	....	86	22,772	98	22,317	3	1	38	92	2	2	3	3	87
Medina	93	100	100	90	10	93	21,603	96	20,739	....	1	48	92	2	2	4	1	88
Meigs	87	98	79	55	45	96	1,960	91	1,784	1	1	34	97	1	1	1	....	75
Mercer	92	78	....	....	100	91	30,340	92	27,913	....	1	43	97	1	1	3	4	77
Miami	90	80	70	60	40	89	23,540	88	20,715	2	1	32	83	1	2	1	3	71
Monroe	86	....	....	....	....	93	7,472	97	7,248	2	....	28	79	2	1	3	2	79

Montgomery	89	25	....	25	75	90	18,147	79	14,336	2	2	33	96	2	2	3	3	76
Morgan	92	....	....	....	....	92	2,876	95	2,732	1	1	31	72	1	1	2	1	79
Morrow	96	....	....	....	....	95	15,605	88	13,732	2	2	42	92	2	1	4	2	88
Muskingum	87	....	....	....	....	91	7,438	100	7,438	....	1	39	80	1	1	3	1	90
Noble	94	....	....	....	....	96	3,482	91	3,169	2	1	34	84	1	1	3	2	90
Ottawa	98	97	90	3	97	95	15,274	93	14,205	1	....	40	95	....	....	....	1	94
Paulding	99	64	....	17	83	100	35,932	100	35,932	....	....	47	90	2	1	2	4	87
Perry	92	....	....	....	....	90	2,537	92	2,334	....	....	36	93	1	1	1	1	87
Pickaway	95	....	....	....	....	98	6,077	94	5,713	2	1	39	92	3	2	4	3	86
Pike	93	....	....	....	....	78	3,976	93	3,698	....	....	24	83	1	1	2	2	80
Portage	88	....	....	....	....	88	18,143	93	16,873	2	....	46	99	1	2	3	2	91
Preble	93	....	....	....	....	90	14,824	88	13,045	3	....	37	103	2	2	1	2	81
Putnam	85	74	90	11	89	79	22,959	92	21,122	....	....	45	82	2	2	2	3	76
Richland	86	90	....	65	35	90	22,930	98	22,471	2	....	43	92	3	1	2	2	84
Ross	91	....	....	....	....	84	3,409	78	2,659	1	1	33	94	3	1	2	2	78
Sandusky	88	....	....	....	....	100	7,668	88	6,748	....	....	47	86	....	....	1	1	89
Scioto	88	....	....	....	....	92	3,916	90	3,524	2	....	23	92	....	....	2	....	92
Seneca	90	....	....	....	....	93	31,015	79	24,502	2	....	38	94	2	1	3	2	75
Shelby	90	100	85	98	2	89	30,050	98	29,449	....	....	38	100	1	1	1	1	88
Stark	80	....	....	....	....	90	30,000	99	29,700	3	2	47	90	2	1	2	2	77
Summit	91	....	....	....	....	92	17,486	96	16,887	1	....	43	93	1	1	1	2	87
Trumbull	87	....	....	....	....	83	18,510	100	18,510	1	....	52	92	2	2	3	1	87
Tuscarawas	87	....	....	....	....	84	17,647	98	17,294	1	2	37	91	2	3	4	1	81
Union	92	60	90	50	50	100	21,291	98	20,865	1	1	42	91	2	2	4	3	79
Van Wert	96	64	....	....	100	99	24,737	95	23,530	1	....	41	98	3	2	2	2	75
Vinton	92	....	....	....	....	87	1,152	99	1,140	....	....	29	81	1	1	2	....	81
Warren	96	....	100	100	....	92	11,860	100	11,860	....	....	29	97	1	2	3	1	73
Washington	88	....	....	....	....	89	7,420	100	7,420	2	1	26	84	1	1	2	1	88
Wayne	78	....	....	....	....	82	26,870	85	22,840	4	3	38	84	1	1	1	1	81
Williams	100	84	....	....	100	96	26,4[illegible]1	88	23,315	....	....	43	87	2	2	3	2	85
Wood	90	93	88	16	84	89	52,887	89	47,069	1	1	48	86	2	1	2	1	76
Wyandot	95	100	92	97	3	98	18,034	100	18,034	1	....	35	98	1	1	3	2	87
Average	....	....	....	....	....	....	....	....	....	....	....	March 24	....	....	....	....	....	....
Per cent.	90	81	84	36	64	91	....	92	....	1.4	0.7	....	91	1.8	1.5	2.5	2.0	84
Totals	....	....	....	....	....	....	1,381,998	....	1,267,582	....	....	....	....	....	....	....	....	....

OFFICIAL REPORT

OF THE

OHIO DEPARTMENT OF AGRICULTURE

ON THE

Area and Condition of Wheat, Corn and Potatoes, and the Condition of Other Crops, July 1, 1905.

The following report represents area and condition of the crops named as compiled from returns received from the regular township crop correspondents of the Department. The estimates of area for corn and potatoes are by comparison with area for last year as returned by the township assessors.

WHEAT—Condition compared with an average	91 per cent.
“ Acres sown last fall	1,859,534 acres.
“ Plowed up this spring	0.25 per cent.
“ Estimated area for the harvest	1,855,356 acres.
BARLEY—Condition compared with an average	88 per cent.
RYE—Condition compared with an average	92 per cent.
OATS—Condition compared with an average	94 per cent.
CORN—Area planted in 1904	2,933,488 acres.
“ Area this year compared with 1904	94 per cent.
“ Total estimated area for 1905	2,769,256 acres.
“ Damage by cut worm	5.48 per cent.
“ Damage by white grub	1.64 per cent.
“ Condition compared with an average	80 per cent.
CLOVER—Damage by white grub	0.80 per cent.
POTATOES—Area planted in 1904	107,013 acres.
“ Area planted this year compared with 1904	96 per cent.
“ Estimated area for 1905	102,799 acres.
“ Condition compared with an average	87 per cent.
TOBACCO—Acreage compared with last year	90 per cent.
TIMOTHY—Condition compared with an average	84 per cent.
PASTURES—Condition compared with an average	98 per cent.
HORSES—Condition compared with an average	95 per cent.
COLTS—Number compared with an average	90 per cent.
CATTLE—Condition compared with an average	96 per cent.
CALVES—Number compared with an average	91 per cent.
WOOL—Clip compared with last year	93 per cent.

The report this month shows wheat condtions have declined since the report issued June 1st. The condition is now estimated at 91 per cent.

of an average, a decline of two points. Generally the wheat heads are of good length and well filled, although some correspondents report the wheat as being of inferior quality. In some localities wheat has been damaged by rust, caused by the heavy rains, but the principal damage to the wheat during the past month was the ravages of the weevil, as nearly every county in the state reports more or less damage by this insect. No serious complaints of damage by the Hessian fly. Last fall 1,859,534 acres were sown to wheat, and, as only a few counties report "plowing up," almost the entire acreage seeded remains for the harvest. The average yield per acre will be quite heavy, although as a whole the product will not equal an average for the state, based upon a ten years' average.

The heavy and continued rains seriously retarded corn planting, and some fields intended for corn were abandoned. The fields are weedy, as cultivation has been impossible, and the growth is not uniform, owing to the irregularity of planting. The estimated condition is reported at 80 per cent.

The damage by cut worms is nearly 6 per cent.

The returns of the township assessors show that 2,933,488 acres were planted to corn in 1904, while this month's report shows 2,769,256 acres, a shortage of 164,232 acres.

Oats are growing nicely, and the estimated condition is 94 per cent. of an average.

The estimated area of potatoes is 96 per cent. as compared with last year. Many fields have been drowned out, necessitating replanting, and proper cultivation has been impossible. The present condition is estimated at 87 per cent. of an average.

REPORT ON THE AREA AND CONDITION OF WHEAT, CORN, POTATOES AND OTHER CROPS, JULY 1, 1905.

Counties.	Wheat.				Barley.	Rye.	Oats.	Corn.						Clover.
	Condition compared with an average.	Area sown last fall.	Plowed up this spring.	Estimated area for the harvest.	Condition compared with an average.	Condition compared with an average.	Condition compared with an average.	Area in 1904.	Area this year compared with 1904.	Total estimated area for 1905.	Condition compared with an average.	Damage by cut worm.	Damage by white grub.	Damage by white grub.
	Per cent	Acres	Per cent	Acres	Per cent	Per cent	Per cent	Acres	Per cent	Acres	Per cent	Per cent	Per ct.	Per ct
Adams	78	15,822	1	15,664	....	86	94	34,841	99	34,493	85	1	....	....
Allen	88	23,946	....	23,946	92	94	89	31,496	102	32,126	90	5	....	....
Ashland	79	27,938	....	27,938	75	87	94	23,250	96	22,320	86	11	3	1
Ashtabula	100	5,963	....	5,963	90	96	92	12,895	98	12,637	75	6	....	....
Athens	93	4,819	1	4,771	....	97	102	8.633	93	8,029	82	2	1	....
Auglaize	83	30,468	....	30,468	89	91	90	46,531	94	43.739	91	15	2	1
Belmont	88	15,266	1	15,113	....	86	99	19,099	100	19,099	90	11	3	1
Brown	100	15,249	....	15,249	....	100	105	44.364	88	39,040	83	2	1	1
Butler	86	51,277	1	50,764	90	95	100	56.268	95	53.455	86	1	....	3
Carroll	92	12,831	....	12,831	....	98	94	10,712	96	10,284	73	13	5	2
Champaign	90	24,005	....	24,005	100	98	87	60,512	88	53,251	77	3	3	1
Clark	90	23,605	....	23,605	75	96	93	51,177	89	45.548	77	5	1	....
Clermont	99	8,622	....	8.622	....	90	102	33.374	99	33.040	82	2	....	1
Clinton	98	32,887	....	32,887	100	93	100	59,435	93	55,275	80	3	2	....
Columbiana	90	18,867	....	18,867	....	89	102	16.105	99	15,944	87	5	3	3
Coshocton	90	20,755	....	20,755	....	90	93	23,058	100	23,058	88	13	3	....
Crawford	96	26,644	....	26,644	100	96	99	35,566	99	35.210	75	9	1	....
Cuyahoga	104	8,029	....	8,029	....	95	100	9,609	102	9,801	89	3	....	....
Darke	95	50,821	....	50,821	93	93	85	89.916	93	83,622	83	9	1	1
Defiance	95	16,412	....	16,412	78	89	95	30.426	92	27,992	85	5	....	1
Delaware	91	12,209	....	12,209	....	91	89	35,008	91	31,857	67	5	1	1
Erie	94	13,288	....	13,288	100	98	95	14,909	95	14.164	78	11	4	6
Fairfield	87	37,647	....	37,647	....	90	98	49.463	92	45,506	99	4	2	....
Fayette	95	29,373	....	29,373	....	93	97	55,373	100	55,373	72	7	1	....
Franklin	90	29,437	1	29,143	85	91	91	59.460	92	54,703	71	2	4	....
Fulton	99	14,506	....	14,506	87	93	83	32.831	94	30,861	66	5	2	....
Gallia	91	8,441	1	8,357	90	90	96	16,962	87	14,757	100	5	....	1
Geauga	91	5,121	....	5,121	....	86	95	8,262	100	8.262	86	7	4	....
Greene	80	34,692	....	34,692	75	90	80	55,848	95	53,056	75	15	5	....
Guernsey	90	10,570	....	10,570	....	90	93	15,272	96	14,661	88	8	6	....
Hamilton	92	14,222	2	13,938	....	92	98	17,604	98	17,252	85	3	2	....
Hancock	91	34,173	....	34,173	88	95	97	53,502	91	48,687	66	4	1	....
Hardin	96	31,989	....	31,989	100	95	93	47,456	93	44.134	80	2	....	....
Harrison	89	7,735	....	7,735	....	97	97	9,143	94	8,594	69	15	3	....

Henry	85	20,571	....	20,571	90	91	82	56,031	103	57,612	50	7	....	....
Highland	90	29,954	1	29,654	80	82	95	53,799	93	50,033	75	6	4	5
Hocking	93	9,491	....	9,491	....	91	91	12,093	92	11,125	79	8	4	1
Holmes	91	23,261	....	23,261	93	99	96	21,107	93	19,630	88	5	....	2
Huron	95	29,163	....	29,163	75	98	94	28,175	94	26,485	73	15	4	2
Jackson	82	6,322	....	6,322	78	86	95	11,158	103	11,493	88	5	2	....
Jefferson	80	10,138	....	10,138	....	90	86	10,097	94	9,491	83	15	2	....
Knox	91	24,610	....	24,610	....	92	98	29,856	92	27,468	73	3	3	3
Lake	95	3,097	....	3,097	....	95	83	5,990	102	6,110	55	4	1	....
Lawrence	86	3,326	1	3,293	100	82	102	14,044	88	12,359	88	2	3	....
Licking	91	27,948	....	27,948	....	94	95	45,231	96	43,422	81	9	3	1
Logan	89	23,223	2	22,759	87	93	92	51,356	92	47,248	86	4	1	2
Lorain	98	19,305	....	19,305	90	93	92	19,580	99	19,384	86	2	....	....
Lucas	96	7,422	1	7,348	85	93	91	22,161	91	20,167	61	5	1	....
Madison	87	11,097	....	11,097	98	91	93	65,578	100	65,578	77	4	....	....
Mahoning	99	18,720	1	18,533	....	83	93	13,372	102	13,639	88	8	2	2
Marion	90	15,107	1	14,956	....	97	89	**44,608**	95	42,378	74	8	2	1
Medina	91	21,871	....	21,871	....	94	95	19,737	96	18,948	81	2	1	....
Meigs	90	10,001	....	10,001	94	99	100	11,211	100	11,211	90	....	....	....
Mercer	93	30,728	....	30,728	80	95	81	49,237	95	46,775	83	11	....	....
Miami	84	39,951	....	39,951	80	84	95	53,544	92	49,260	86	3	4	1
Monroe	95	13,715	....	13,715	100	97	98	16,900	94	15,886	91	12	1	....
Montgomery	81	31,233	....	31,233	85	90	98	46,160	96	44,314	85	7	4	4
Morgan	94	8,931	....	8,931	....	95	93	13,455	93	12,514	75	6	2	1
Morrow	98	17,027	....	17,027	....	98	92	25,556	93	23,767	76	7	2	....
Muskingum	97	18,932	....	18,932	....	93	91	24,974	100	24,974	86	8	2	1
Noble	100	9,432	....	9,432	....	96	98	14,246	93	13,249	83	4	2	1
Ottawa	96	11,575	....	11,575	85	85	83	21,686	97	21,035	60	....	....	....
Paulding	98	14,078	....	14,078	86	96	89	49,548	91	45,089	70	....	....	....
Perry	85	15,259	....	15,259	....	89	94	15,065	100	15,065	89	5	2	....
Pickaway	90	52,675	1	52,139	....	100	96	70,965	96	68,126	95	2	1	....
Pike	83	8,194	2	8,030	80	80	100	24,151	91	21,977	80	1	....	....
Portage	94	17,394	....	17,394	95	97	95	13,525	96	12,984	89	4	1	....
Preble	92	45,246	....	45,246	....	95	96	53,667	98	52,594	87	1	1	....
Putnam	78	31,063	....	31,063	81	78	77	61,486	91	55,952	71	2	....	1
Richland	90	29,989	....	29,989	75	84	82	26,855	89	23,901	61	7	1	....
Ross	93	37,021	....	37,021	90	93	98	60,201	98	58,997	88	1	1	....
Sandusky	84	27,531	2	26,980	77	88	84	42,823	80	34,258	62	4	1	6
Scioto	80	10,231	....	10,231	....	87	93	21,558	86	18,540	80	....	....	....
Seneca	89	42,960	....	42,960	....	100	95	46,971	97	45,562	80	4	....	1
Shelby	90	35,395	....	35,395	....	94	95	48,017	100	48,017	90	4	....	....
Stark	81	38,705	....	38,705	....	90	96	28,840	98	28,263	82	2	1	1
Summit	97	21,624	....	21,624	....	88	89	16,080	96	15,437	78	4	2	....
Trumbull	93	10,518	....	10,518	....	66	97	12,813	104	13,326	79	6	2	1
Tuscarawas	90	22,561	....	22,561	....	93	96	18.484	98	18,114	83	13	3	2
Union	91	16,696	1	16,529	83	91	99	48,162	94	45,272	74	4	1	1
Van Wert	90	19,680	1	19,483	81	95	85	49,053	92	45,029	72	5	4	3
Vinton	95	3,488	....	3,488	....	95	106	7,660	94	7,200	91	1	1	....
Warren	85	25,020	....	25,020	100	95	105	46,374	100	46,374	88	1	....	....
Washington	95	17,303	....	17,303	....	88	93	18,217	97	17,670	82	9	4	....
Wayne	78	39,944	1	39,545	90	88	96	34,546	89	30,746	68	2	1	1
Williams	100	19,232	....	19,232	82	92	81	31,309	88	28,652	75	5	....	....
Wood	85	22,100	1	21,879	89	93	94	79,395	87	69,074	72	4	1	1
Wyandot	92	22,647	....	22,647	97	100	98	38,421	98	37,652	81	4	2	1
Average	91	....	0.25	....	88	92	94	....	94	....	80	5.48	1.64	0.80
Totals	....	1,859,534	....	1,855,356	....	....	....	2,933,488	....	2,769,256	....	....	....	....

REPORT ON THE AREA AND CONDITION OF WHEAT, CORN, POTATOES AND OTHER CROPS, JULY 1, 1904—Concluded.

Counties.	Potatoes				Tobacco	Timothy	Pastures	Horses	Colts	Cattle	Calves	Wool
	Area in 1904.	Area planted this year compared with 1904.	Estimated area for 1904.	Condition compared with an average.	Acreage compared with last year.	Condition compared with an average.	Condition compared with an average.	Condition compared with an average.	Number compared with an average.	Condition compared with an average.	Number compared with an average.	Clip compared with last year.
	Acres	Per cent	Acres	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per cent	Per ct
Adams	280	99	277	92	95	90	98	99	89	96	91	94
Allen	538	94	506	89	....	99	103	100	98	100	97	101
Ashland	980	97	951	87	....	83	94	97	90	98	93	97
Ashtabula	2,505	97	2,430	91	....	89	93	98	91	93	93	85
Athens	240	98	235	91	70	90	104	98	95	98	96	97
Auglaize	1,084	93	1,008	87	....	83	100	96	78	100	98	95
Belmont	1,194	100	1,194	99	102	74	99	98	76	100	95	100
Brown	382	95	363	95	95	100	100	80	90	100	100	100
Butler	919	98	901	94	100	96	100	98	98	100	98	97
Carroll	352	95	334	87	....	70	94	91	93	94	92	92
Champaign	259	92	238	84	100	79	102	93	72	93	74	82
Clark	626	96	601	91	....	83	99	100	96	100	100	98
Clermont	738	98	723	95	97	94	102	100	91	98	98	90
Clinton	367	91	334	83	75	90	102	96	92	95	95	99
Columbiana	1,870	97	1,814	95	....	77	97	97	95	83	94	97
Coshocton	1,060	93	986	95	....	70	98	100	95	102	92	96
Crawford	1,435	95	1,363	81	....	84	101	96	92	99	99	93
Cuyahoga	6,976	105	7,325	92	....	89	99	100	95	99	99	95
Darke	1,378	90	1,240	76	93	83	97	92	71	92	83	95
Defiance	731	84	614	79	....	90	93	93	96	91	90	86
Delaware	444	92	409	82	....	81	99	97	94	97	95	79
Erie	3,033	97	2,943	101	....	93	98	93	92	97	84	93
Fairfield	1,157	100	1,157	90	....	87	102	98	96	96	92	88
Fayette	27	93	25	83	....	80	103	95	87	90	85	88
Franklin	1,918	101	1,937	86	75	87	85	100	104	97	97	100
Fulton	937	99	928	72	....	100	98	95	93	97	93	92
Gallia	182	98	178	95	100	87	102	100	85	92	100	96
Geauga	2,397	93	2,229	93	....	81	101	94	95	96	73	92
Greene	554	80	443	75	60	90	100	80	90	100	80	100
Guernsey	446	95	424	95	97	73	98	98	98	98	96	94
Hamilton	3,240	93	3,013	93	100	88	98	92	83	97	88	98
Hancock	966	90	869	72	....	94	100	98	93	97	95	99
Hardin	1,863	83	1,546	79	....	89	99	97	95	99	87	86
Harrison	209	96	201	98	....	75	94	95	92	92	91	94
Henry	662	95	629	65	....	85	95	97	94	99	99	90
Highland	210	91	191	88	47	73	97	91	79	93	84	84

Hocking	611	93	568	88	....	83	98	95	80	95	85	89
Holmes	659	100	659	97	100	95	103	100	96	100	94	100
Huron	1,137	86	978	86	....	69	95	91	77	96	72	93
Jackson	129	95	123	98	50	71	96	92	89	97	93	90
Jefferson	517	86	445	85	....	60	81	82	68	79	69	78
Knox	400	94	376	93	....	82	104	100	82	100	97	99
Lake	1,875	86	1,613	91	....	83	98	94	100	90	88	80
Lawrence	249	94	234	98	70	84	102	96	77	94	87	77
Licking	1,076	95	1,022	96	....	79	97	94	88	96	86	94
Logan	459	92	422	96	100	83	100	96	93	97	86	100
Lorain	2,170	92	1,996	90	....	83	96	99	89	97	94	92
Lucas	3,258	92	2,997	67	....	95	100	92	82	89	102	96
Madison	146	93	136	90	....	88	102	99	88	100	99	95
Mahoning	2,500	112	2,800	90	....	83	100	98	91	98	86	94
Marion	670	89	596	72	....	85	96	96	88	93	89	89
Medina	2,870	104	2,985	86	100	83	99	94	99	95	81	94
Meigs	492	99	487	95	95	93	97	96	92	95	94	80
Mercer	846	96	812	87	....	76	93	100	99	96	95	97
Miami	712	91	648	84	94	85	96	97	85	91	94	86
Monroe	1,261	93	1,173	99	93	68	90	95	77	96	89	93
Montgomery	1,284	98	1,258	91	100	93	100	98	90	99	99	88
Morgan	380	99	376	94	90	76	94	96	89	94	93	91
Morrow	840	87	731	77	90	86	98	100	101	97	98	103
Muskingum	840	93	781	89	....	66	94	98	98	99	90	97
Noble	37	93	592	97	110	85	100	96	91	94	94	95
Ottawa	37	100	737	92	....	98	100	100	100	100	100	100
Paulding	412	94	387	71	....	93	103	99	94	100	95	100
Perry	469	98	460	96	....	77	98	97	96	99	94	94
Pickaway	359	96	345	100	....	97	102	101	95	99	101	84
Pike	563	93	524	82	....	84	100	92	93	88	87	83
Portage	7,352	102	7,499	87	....	77	98	99	97	97	93	94
Preble	367	95	349	89	99	102	103	99	102	98	98	89
Putnam	858	87	746	72	100	76	97	93	83	89	86	87
Richland	1,394	88	1,337	71	....	77	89	90	79	93	88	86
Ross	703	93	654	96	93	80	99	96	98	96	93	95
Sandusky	1,993	87	1,734	71	....	77	79	90	76	85	91	85
Scioto	983	93	914	94	100	78	93	92	95	100	100	97
Seneca	1,439	95	1,367	86	....	83	98	94	95	93	94	93
Shelby	778	95	739	75	....	80	105	95	97	100	95	100
Stark	3,273	94	3,077	84	100	78	87	92	97	93	83	92
Summit	3,191	101	3,223	82	....	82	97	94	88	94	86	88
Trumbull	3,097	106	3,283	87	....	75	98	97	91	97	96	91
Tuscarawas	1,539	98	1,508	97	....	78	96	94	89	94	93	97
Union	181	90	162	96	....	94	102	94	103	99	89	104
Van Wert	624	77	480	83	....	78	93	79	86	94	78	82
Vinton	246	94	231	93	....	83	106	99	100	99	100	77
Warren	385	93	378	93	100	91	105	100	101	100	95	100
Washington	1,495	95	1,420	93	75	85	101	92	71	94	84	94
Wayne	4,162	93	3,871	73	....	82	94	89	77	90	88	93
Williams	722	91	657	78	....	96	100	90	96	98	87	105
Wood	915	88	805	75	....	98	102	95	94	98	86	94
Wyandot	599	91	545	84	....	90	103	99	93	100	90	99
Averages	....	96	....	87	90	84	98	95	90	96	91	93
Totals	107,013	....	102,799	....	....	....	....	....	....	....	....	....

OFFICIAL REPORT

OF THE

OHIO DEPARTMENT OF AGRICULTURE

ON THE

Acreage and Condition of Wheat, Oats, Barley and Rye, and the Condition of Other Crops, October 1, 1905.

The following report is the first issued by the Department estimating the product in bushels per acre of wheat, oats, barley and rye, for the harvest of the present year, and is based on the results of threshing throughout the several counties of the State. The condition or prospect of other crops named is by percentage comparison with a full average condition or prospect:

WHEAT—	Estimated area harvested	1,883,554 acres.
"	Product per acre estimated from threshers' returns	17.1 bushels.
"	Total estimated product for 1905	32,157,118 bushels.
"	Quality compared with an average	88 per cent.
"	Crop of 1904 still in producers' hands	8 per cent.
OATS—	Area as returned by township assessors	1,454,554 acres.
"	Product per acre estimated from threshers' returns	36.2 bushels.
"	Total estimated product for 1905	52,673,354 bushels.
"	Quality compared with an average	89 per cent.
BARLEY—	Fall and Spring:	
	Area as returned by township assessors	31,906 acres.
"	Product per acre estimated from threshers' returns	27 bushels.
"	Total estimated product for 1905	863,004 bushels.
"	Quality compared with an average	74 per cent.
RYE—	Area as returned by township assessors	63,851 acres.
"	Product per acre estimated from threshers' returns	16.2 bushels.
"	Total estimated product for 1905	1,034,773 bushels.
"	Quality compared with an average	91 per cent.
CORN—	Prospect compared with an average	89 per cent.
"	Cut up for fodder	81 per cent.
"	Average date for cutting for fodder	September 17.
POTATOES—	Total yield compared with an average	70 per cent.
TOBACCO—	Condition compared with an average	87 per cent.
PASTURES—	Condition compared with an average	95 per cent.
APPLES—	Prospect compared with an average	23 per cent.

The township assessors' returns show that the original area seeded to wheat for the harvest of 1905 was 1,888,988 acres, and as only a very small percentage of this area was plowed up in the spring, there remained for the harvest 1,883,554 acres. The average yield per acre is estimated at 17.1 bushels, giving a total production of 32,157,118 bushels for the State. The crop, while not up to a full average, is over eleven million bushels in excess of that harvested last year.

As indicated by the monthly reports of the Department, wheat showed steady improvement as the growing season advanced, no material damage being reported during that time, and as was anticipated the yield has been fair. The average yield per acre is above a good average for the State, and shows an excess of a little more than five bushels per acre over the crop of 1904. The area, with the exception of that of last year, is the lowest in a number of years. The quality of the grain is quite satisfactory, being estimated at 88 per cent. compared with a good average quality. The ground is now in fine condtion, and wheat seeding is in progress over the State.

The estimated area sown to oats, as reported by the township assessors, is 1,454,554 acres. This exceeds the large area sown last year, but, as the average yield per acre is about five bushels less than that crop, the total production is about four million bushels less than last year. The excessive rain at harvest time caused heavy damage, and in many sections of the State the crop was so badly lodged that the heads were imperfectly filled. The quality of the grain is estimated at 89 per cent.

The total area of winter and spring barley is estimated at 31,906 acres. The average product per acre is estimated at twenty-seven bushels, giving a total production for the State of 863,004 bushels.

The area sown to rye is the most variable of the grain crops, and the report shows that the area for the harvest this year is much greater than that of 1904. The total product is estimated at 1,034,773 bushels.

Corn prospects are estimated at 89 per cent. compared with an average, the crop is rapidly maturing and there is now very little, if any, danger of injury by frost. The continued rains during the growing season prevented proper cultivation, and this has affected the quality.

The probable total yield of potatoes is estimated at 70 per cent. The crop has been greatly reduced by blight and rot.

Prospects for a good supply of apples are very discouraging, and the indications are that the crop will be but about one-fourth of a good average.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE ACREAGE AND PRODUCT OF WHEAT, OATS, BARLEY AND RYE AND THE CONDITION OF OTHER CROPS, OCTOBER 1, 1905.

Counties.	Wheat.					Oats.				Barley.			
	Estimated area harvested.	Product per acre estimated from threshers returns.	Total estimated product for 1905.	Quality compared with an average.	Crop of 1904 still in producers' hands.	Area returned by township assessors.	Product per acre estimated from threshers' returns.	Total estimated product for 1905.	Quality compared with an average.	Area of winter and spring as returned by township assessors.	Product per acre estimated from threshers' returns.	Total estimated product for 1905.	Quality compared with an average.
	Acres	Bushels	Bushels	Per cent	Per cent	Acres	Bushels	Bushels	Per cent	Acres	Bushels	Bushels	Per ct
Adams	18,434	12.2	224,895	94	5	5,614	27.5	154,385	91	....	....	....	....
Allen	28,299	17.0	481,083	91	5	13,650	37.5	511,875	85	285	39.2	11,172	86
Ashland	25,300	14.5	366,850	84	10	16,797	35.8	601,333	90	59	41.0	2,419	90
Ashtabula	5,828	17.9	104,321	92	12	24,182	38.9	940,680	94	72	30.0	2,160	75
Athens	7,033	14.8	104,088	98	7	2,707	25.5	69,029	90	8	27.3	218	91
Auglaize	33,277	17.7	589,003	80	18	21,174	42.0	889,308	92	125	43.5	5,437	90
Belmont	14,681	18.8	276,003	94	20	9,790	29.5	288,805	94	30	17.0	510	92
Brown	18,024	11.0	198,264	98	25	10,514	24.0	252,336	90	....	....	....	....
Butler	52,278	17.0	888,726	93	....	10,986	39.3	431,750	98	516	40.0	20,640	90
Carroll	12,500	13.3	166,250	83	8	12,293	30.0	368,790	90	....	....	....	....
Champaign	20,775	15.8	328,245	85	20	29,159	28.4	828,116	85	412	19.0	7,828	85
Clark	26,496	17.0	450,432	82	4	15,414	34.7	534,866	93	220	23.4	5,148	90
Clermont	9,928	17.0	168,776	98	1	12,836	36.0	462,096	100	121	22.0	2,662	98
Clinton	32,171	19.5	627,334	98	3	9,919	33.6	333,278	93	95	24.5	2,327	90
Columbiana	20,236	14.1	285,328	94	4	17,580	35.7	627,606	94	7	21.5	150	96
Coshocton	20,345	11.7	238,036	91	12	12,035	37.8	454,923	76	2	16.0	32	77
Crawford	25,307	19.0	480,833	88	4	25,973	34.6	898,666	79	90	25.0	2,250	100
Cuyahoga	8,858	19.3	170,959	98	4	14,319	43.8	627,172	98	39	23.0	897	96
Darke	44,596	18.4	820,566	90	6	38,768	41.3	1,601,118	91	139	40.0	5,560	50
Defiance	16,449	18.6	305,951	93	2	28,632	39.6	1,133,827	96	1,546	28.3	43,752	83
Delaware	13,080	16.0	209,280	100	5	14,175	32.0	453,600	100	....	....	....	....
Erie	14,399	18.2	262,062	88	10	14,314	32.8	469,499	89	216	22.3	4,817	95
Fairfield	40,475	19.6	793,310	86	5	6,121	34.6	211,787	93	23	24.3	559	92
Fayette	27,329	24.0	655,896	97	5	12,815	39.0	499,785	83	33	25.0	825	85
Franklin	29,142	16.4	477,929	86	8	16,755	32.0	536,160	87	193	26.3	5,076	89
Fulton	12,731	21.4	272,443	95	2	26,878	35.4	951,481	87	1,723	26.5	45,659	94
Gallia	10,950	15.0	164,250	86	3	4,518	27.8	125,600	80	....	....	....	....
Geauga	5,790	19.3	111,747	96	15	13,669	43.8	598,702	88	10	15.0	150	100
Greene	36,755	20.0	735,100	80	5	11,216	24.0	269,184	90	44	31.5	1,386	91
Guernsey	11,195	14.7	164,566	88	5	7,086	28.3	200,534	90	....	....	....	....
Hamilton	10,574	22.0	232,628	98	25	4,116	**35.0**	**144,060**	87	24	25.0	600	85
Hancock	36,509	16.0	584,144	81	11	20,261	39.1	792,205	88	424	17.7	7,505	86
Hardin	18,667	17.0	317,339	80	14	17,257	33.0	569,481	86	103	25.0	2,575	95
Harrison	8,200	13.5	110,700	92	12	7,060	30.5	215,330	96	105	22.3	2,341	95

Henry	19,728	17.4	343,267	86	3	30,655	39.0	1,195,545	85	5,625	32.5	182,812	86
Highland	35,454	15.2	538,901	91	7	7,113	40.0	284,520	96	10	21.7	217	95
Hocking	11,073	17.0	188,241	92	6	3,610	24.3	87,723	87	9	25.3	228	88
Holmes	22,222	12.8	284,442	90	4	17,878	33.0	589,974	90	....	....	....	....
Huron	30,889	19.7	608,513	97	1	29,840	38.8	1,157,792	91	47	15.0	705	100
Jackson	5,858	11.8	69,124	73	8	1,445	26.0	37,570	89	....	....	....	....
Jefferson	10,473	13.6	142,433	96	3	10,456	31.4	328,318	88	81	21.3	1,725	90
Knox	26,130	18.0	470,340	87	5	11,036	31.0	342,116	89	....	....	....	....
Lake	2,585	20.0	51,700	93	6	7,123	41.5	295,605	100	343	24.3	8,335	97
Lawrence	2,689	15.7	42,217	65	8	4,519	35.0	158,165	72	....	....	....	....
Licking	28,398	16.3	462,887	86	10	15,301	34.7	530,945	92	21	25.5	535	90
Logan	19,711	14.2	279,896	73	13	21,854	36.2	791,115	97	175	19.5	3,412	75
Lorain	19,354	19.0	367,726	91	3	21,186	41.1	870,745	91	83	22.0	1,826	90
Lucas	7,772	20.8	161,658	95	3	16,353	38.0	621,414	89	901	27.5	24,777	90
Madison	8,468	13.5	114,318	85	1	40,814	26.0	1,061,164	85	379	26.7	10,119	85
Mahoning	15,987	18.7	298,957	93	3	17,302	36.7	634,983	95	....	....	....	....
Marion	15,338	14.0	214,732	82	11	27,788	35.1	975,359	73	20	21.6	432	75
Medina	21,481	21.7	466,138	90	14	18,654	38.8	723,775	80	11	33.0	363	80
Meigs	11,116	14.0	155,624	100	....	4,127	29.0	119,683	100	....	....	....	....
Mercer	31,695	18.4	583,188	73	12	31,447	40.4	1,270,459	97	737	30.0	22,110	100
Miami	37,992	20.0	759,840	87	12	25,028	47.0	1,176,316	81	6	26.2	157	80
Monroe	15,092	14.5	218,834	93	10	9,143	25.0	228,575	91	....	....	....	....
Montgomery	37,902	17.7	670,865	75	20	13,749	40.7	559,584	87	44	26.4	1,162	88
Morgan	10,101	19.6	197,980	94	7	3,914	27.9	109,201	88	1	24.0	24	90
Morrow	16,161	16.3	263,424	89	2	17,620	32.8	477,936	77	4	27.1	108	79
Muskingum	21,606	15.4	332,732	93	2	8,315	30.9	256,934	87	23	23.0	529	88
Noble	10,628	12.3	130,724	90	18	4,902	29.3	143,629	98	1	21.2	21	96
Ottawa	11,410	20.0	228,200	93	10	13,632	32.5	443,040	100	1,945	20.0	38,900	75
Paulding	12,322	18.7	230,421	87	13	31,539	33.8	1,066,018	89	3,191	24.0	76,584	74
Perry	14,041	16.5	231,676	95	2	2,897	26.4	76,481	92	2	23.5	47	90
Pickaway	53,166	20.0	1,063,320	81	5	8,213	36.0	295,668	85	3	26.3	79	83
Pike	12,573	10.2	128,245	81	....	4,810	27.0	129,870	83	7	20.0	140	85
Portage	18,495	18.9	349,555	91	1	19,301	39.9	770,110	74	13	44.0	572	100
Preble	38,668	18.9	730,825	84	3	13,609	39.5	537,556	98	41	22.1	906	95
Putnam	32,230	15.7	506,011	71	6	18,545	35.5	658,348	86	2,965	27.6	81,834	74
Richland	32,545	13.3	432,848	75	18	26,289	34.7	912,228	62	70	36.0	2,520	85
Ross	39,350	15.4	605,990	88	14	4,145	28.7	118,962	87	702	24.2	16,988	85
Sandusky	25,555	17.0	434,435	78	13	23,826	47.5	1,131,735	80	224	20.0	4,480	50
Scioto	12,992	14.6	189,683	95	2	4,932	28.5	140,562	98	40	25.0	1,000	95
Seneca	48,874	19.7	962,818	84	2	28,260	38.9	1,099,314	91	33	29.7	980	90
Shelby	31,589	13.5	426,451	80	....	32,358	43.0	1,391,394	95	20	19.0	380	90
Stark	42,373	16.5	699,154	90	2	31,439	36.7	1,153,811	95	4	23.0	92	92
Summit	21,294	19.1	406,715	91	3	17,244	41.7	719,075	82	60	25.0	1,500	75
Trumbull	10,595	17.0	180,115	92	6	21,156	36.0	761,616	82	2	21.3	43	80
Tuscarawas	21,898	15.1	330,660	92	9	17,965	35.3	634,165	89	5	24.5	122	88
Union	11,992	15.3	183,478	82	....	22,223	28.3	628,911	78	129	20.0	2,580	75
Van Wert	21,914	18.0	394,452	87	13	25,607	40.5	1,037,084	95	2,467	27.5	67,842	88
Vinton	4,208	13.0	54,704	95	19	2,048	19.3	39,526	87	15	24.3	364	85
Warren	25,216	19.5	491,712	100	13	10,877	35.0	380,695	93	23	21.1	485	90
Washington	18,429	19.6	361,208	99	7	8,936	28.8	257,357	97	4	25.0	100	100
Wayne	45,890	13.7	628,693	82	9	31,467	37.5	1,180,013	81	7	23.6	165	95
Williams	17,926	17.3	310,120	85	5	26,793	35.0	937,755	80	1,982	27.5	54,505	75
Wood	23,887	19.6	468,185	85	13	54,462	42.8	2,330,974	80	2,727	23.5	64,084	70
Wyandot	21,608	15.8	341,406	88	1	22,226	34.4	764,574	87	40	36.5	1,460	80
Average per cent	....	17.1	....	88	8	....	36.2	....	89	....	27.0	....	74
Totals	1,883,554	....	32,157,118	....	....	1,454,554	....	52,673,354	....	31,906	....	863,004	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE ACREAGE AND PRODUCT OF WHEAT, OATS, BARLEY AND RYE, AND THE CONDITION OF OTHER CROPS, OCTOBER 1, 1905—Continued.

Counties.	Rye.				Corn.			Potatoes.	Tobacco.	Pastures.	Apples.
	Area as returned by township assessors.	Product per acre Estimated from thresher's returns.	Total estimated product for 1905.	Quality compared with an average.	Prospect compared with an average.	Cut up for fodder.	Date of cutting for fodder, days after Sep. 1st.	Probable total yield compared with an average.	Condition compared with an average.	Condition compared with an average.	Prospect compared with an average.
	Acres	Bushels	Bushels	Per cent	Per cent	Per ct.	Days	Per cent	Per cent	Per cent	Per cent
Adams	964	14.4	13,882	96	89	87	13	76	92	96	28
Allen	....	....	....	....	93	84	12	58	....	98	11
Ashland	368	13.5	4,968	95	88	95	20	60	....	80	15
Ashtabula	1,274	16.0	20,384	91	77	56	22	70	....	92	20
Athens	64	12.0	768	75	101	96	13	92	....	110	29
Auglaize	377	30.0	11,310	90	89	72	12	76	....	85	27
Belmont	270	22.7	6,129	93	98	94	18	85	100	95	14
Brown	4,241	10.0	42,410	100	88	55	17	95	93	93	58
Butler	501	14.0	7,014	99	100	33	12	86	....	100	22
Carroll	177	10.0	1,770	70	74	70	19	69	....	93	30
Champaign	1,336	17.8	23,781	89	97	79	21	63	....	105	15
Clark	2,125	14.0	29,750	90	90	93	21	58	50	93	13
Clermont	2,894	16.0	46,304	93	96	74	18	86	90	99	26
Clinton	1,114	15.8	17,601	90	99	78	9	66	90	103	10
Columbiana	283	17.7	5,009	97	94	95	20	73	....	95	19
Coshocton	402	15.4	6,191	90	94	95	12	76	....	101	11
Crawford	147	15.0	2,205	100	88	95	16	70	....	100	9
Cuyahoga	902	17.8	16,056	97	95	45	22	78	....	98	17
Darke	968	18.0	17,424	92	84	58	18	63	89	96	34
Defiance	600	19.0	11,400	99	91	81	12	49	....	99	40
Delaware	834	20.0	16,680	100	85	98	17	73	....	108	15
Erie	421	19.3	8,125	100	95	70	17	66	....	94	28
Fairfield	356	15.0	5,340	90	92	95	12	81	....	97	37
Fayette	1,187	17.5	20,773	95	105	80	14	67	....	107	13
Franklin	1,834	15.8	28,977	85	87	84	14	81	....	105	34
Fulton	1,495	12.5	18,688	95	69	90	19	54	....	79	40
Gallia	396	13.3	5,267	81	95	81	18	75	....	84	14
Geauga	224	15.0	3,360	95	94	53	15	72	....	100	26
Greene	2,212	10.0	22,120	90	75	90	20	65	75	90	10
Guernsey	198	15.0	2,970	95	97	93	20	73	100	100	15
Hamilton	700	16.2	11,340	94	102	63	18	76	90	101	24
Hancock	602	15.8	9,512	94	84	95	17	67	....	101	13
Hardin	714	16.8	11,995	81	94	91	19	62	....	99	19
Harrison	59	12.3	726	95	91	90	20	83	....	92	19

Henry	2,131	24.3	51,783	88	87	72	16	46		98	26
Highland	1,100	12.8	14,080	98	98	92	13	66	95	94	21
Hocking	187	10.0	1,870	60	95	89	18	80		100	57
Holmes	93	14.5	1,349	98	94	94	16	88		100	24
Huron	184	13.5	2,484	88	87	93	21	60		93	9
Jackson	123	10.0	1,230	100	100	98	16	83		86	22
Jefferson	69	14.0	966	95	88	88	19	77		92	19
Knox	565	12.0	6,780	88	91	98	20	84		93	9
Lake	771	20.0	15,420	100	93	51	23	80		95	35
Lawrence	111	14.3	1,587	78	65	92	17	58	77	92	15
Licking	1,799	15.0	26,985	93	81	89	13	80		94	13
Logan	1,468	15.8	23,194	91	96	91	13	62		107	22
Lorain	212	20.0	4,240	98	89	89	21	67		86	10
Lucas	1,207	11.8	14,243	88	66	74	19	44		90	28
Madison	993	14.5	14,399	92	84	71	11	80		100	38
Mahoning	350	23.0	8,050	85	91	37	13	73		98	30
Marion	451	10.0	4,510	90	91	76	19	75		101	35
Medina	805	19.5	15,697	94	89	100	23	66	75	96	16
Meigs	351	14.2	4,984	100	105	90	20	75		100	48
Mercer	603	21.0	12,663	95	93	88	23	67	50	95	15
Miami	211	10.0	2,110	85	93	37	18	78	84	95	40
Monroe	222	12.5	2,775	84	94	99	13	71	100	90	14
Montgomery	489	15.0	7,335	95	95	85	18	63	83	103	12
Morgan	126	15.0	1,890	84	97	97	17	81		104	26
Morrow	364	15.0	5,460	80	77	93	17	63		102	5
Muskingum	535	14.5	7,758	95	92	99	17	73		93	9
Noble	109	12.0	1,308	90	90	92	15	90	100	100	28
Ottawa	377	30.0	11,310	95	80	95	30	45		95	63
Paulding	4,795	22.0	105,490	94	67	58	19	54		88	21
Perry	237	14.7	3,484	91	94	96	16	86		103	36
Pickaway	882	19.0	16,758	95	98	90	10	81		106	49
Pike	151	11.0	1,661	85	94	70	14	67	100	96	18
Portage	427	15.8	6,747	94	79	81	22	57		98	19
Preble	638	18.3	11,675	98	99	52	22	78	84	103	24
Putnam	1,257	18.9	23,757	82	78	88	15	50		87	24
Richland	452	14.0	6,328	90	77	86	18	60		88	23
Ross	477	15.2	7,250	88	91	71	14	75	100	98	33
Sandusky	409	20.5	8,384	68	67	90	15	50		45	15
Scioto	219	20.0	4,380	100	87	97	22	93	85	93	23
Seneca	163	19.0	3,097	85	80	78	16	53		78	20
Shelby					100	48	25	75	96	100	15
Stark	270	12.2	3,294	90	77	80	20	55		73	20
Summit	324	14.5	4,698	82	89	58	24	61		88	28
Trumbull	418	16.2	6,772	98	72	81	22	64		100	19
Tuscarawas	163	16.7	2,722	95	92	92	19	78		94	13
Union	1,367	13.5	18,454	85	87	73	20	67		100	37
Van Wert	1,226	26.0	31,876	93	98	78	19	70		98	22
Vinton	123	12.0	1,476	100	103	100	17	82		103	17
Warren	1,337	9.0	12,033	100	98	60	10	78	100	95	17
Washington	168	18.5	3,108	93	97	93	13	75	70	98	20
Wayne	352	8.0	2,816	96	75	91	19	67	90	82	18
Williams	642	16.0	10,272	83	72	87	21	40		85	25
Wood	804	20.0	16,080	98	90	59	17	54		80	45
Wyandot	304	18.0	5,472	100	101	93	15	85		102	16
Average per cent		16.2		91	89	81	Sep. 17	70	87	95	23
Totals	63,851		1,034,773								

OFFICIAL REPORT

OF THE

OHIO DEPARTMENT OF AGRICULTURE

ON THE

Area of Fall Crops, Area and Product of Potatoes, and the Condition of Other Crops, November 1, 1905.

The following report indicates the acreage and condition of crops November 1st, as estimated from the returns received from the regular crop correspondents of the Department. In estimating area of wheat and potatoes, comparison is made with the acreage of last year:

WHEAT—Area sown last fall as returned by township assessors	1,888,988 acres.
" Sown this fall compared with last year	99 per cent.
" Estimated area seeded for the harvest of 1906	1,866,467 acres.
" Condition compared with an average	97 per cent.
" Average date of seeding	September 26.
RYE—Area sown last fall as returned by township assessors	64,385 acres.
" Sown this fall compared with last year	86.5 per cent.
" Estimated area seeded for the harvest of 1906	55,687 acres.
" Condition compared with an average	95 per cent.
CORN—Prospect compared with an average	100 per cent.
BUCKWHEAT—Prospect compared with an average	83 per cent.
CLOVER SEED—Prospect compared with an average	59 per cent.
POTATOES—Area planted as estimated by township assessors	128,652 acres.
" Average product per acre	81 bushels.
" Total estimated product for 1905	10,396,837 bushels.
" Affected by rot	7 per cent.
APPLES—Product compared with an average	19 per cent.
HOGS—Condition compared with an average	94 per cent.
" Number to be fattened compared with 1904	89 per cent.
COMMERCIAL FERTILIZERS. Farmers using on wheat	60 per cent.

The estimated area seeded to wheat for the harvest of 1906 is 1,866,467 acres. By comparison with the original area reported by the township assessors for the harvest last past, it shows a shortage of 22,521 acres, making this one of the lowest areas seeded in a number of years. Of the eighty-eight counties of the state, twenty-eight show an increase over the acreage seeded last year, fourteen report the same acreage, while forty-six counties report a decline in the acreage compared with last year.

Various reasons are assigned by the correspondents for the short acreage, chief among them being that corn was so late that it was impossible to prepare the ground for wheat, and some fields intended for late seeding were abandoned, owing to the wet weather. Most of the wheat was sown early, and, generally, it has made fine growth, the plant being well rooted and the fields covered with a good stand. Some fear was expressed that, owing to the early seeding and the warm weather following, the plant would be damaged by fly, but as yet there have been no serious complaints of this pest. Present indications are that wheat will go into winter in fine condition.

Corn prospects are estimated at 100 per cent. Husking is well advanced and the yield is variable, being reported from light to excellent. Considerable corn is of poor quality, unfit to crib without sorting, being moldy and affected with rot. However the greater part of the crop is reported as excellent, both in yield and quality.

The estimated area planted to potatoes was 128,652 acres, an increase over last year, but the total production does not equal that crop. The average production per acre is reported as eighty-one bushels, being twenty-two bushels per acre less than last year. Nearly every county in the state reports rot, the damage ranging from one to eighteen per cent., with an average of seven per cent. for the state as a whole.

The average condition of hogs is reported at 94 per cent., while the number to be fattened shows about the same per cent. as last year. Hog cholera is prevalent in many sections of the state.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE AREA OF WHEAT AND RYE, AREA AND PRODUCTION OF POTATOES AND THE CONDITION OF OTHER CROPS, NOVEMBER 1, 1905.

Counties.	Wheat.					Rye.				Corn.
	Area sown last fall as returned by township assessors.	Sown this fall compared with last year.	Estimated area seeded for the harvest of 1906.	Condition compared with an average.	When sown days after Sept. 15th.	Area sown last fall as returned by township assessors.	Sown this fall compared with last year.	Estimated area seeded for the harvest of 1906.	Condition compared with an average.	Prospect compared with an average.
	Acres	Per cent	Acres	Per cent		Acres	Per cent	Acres	Per cent	Per cent
Adams	18,954	96	15,196	96	16	964	83	820	93	105
Allen	28,299	90	25,469	100	7	321	100	321	100	110
Ashland	25,300	96	24,288	91	8	368	75	273	89	100
Ashtabula	5,828	102	5,945	101	8	1,274	92	1,172	94	96
Athens	7,104	100	7,104	107	12	64	83	53	102	114
Auglaize	33,277	98	32,611	98	5	377	95	358	100	103
Belmont	14,829	100	14,829	102	7	270	77	208	98	110
Brown	18,024	101	18,204	98	14	4,241	77	3,266	98	103
Butler	52,806	100	52,806	103	8	501	100	501	105	100
Carroll	12,500	94	11,750	88	4	177	82	145	95	92
Champaign	20,775	121	25,138	99	8	1,336	83	1,109	96	106
Clark	26,496	97	25,701	100	23	2,125	97	2,061	100	100
Clermont	9,928	113	11,219	101	16	2,894	90	2,605	100	102
Clinton	32,171	100	32,171	95	17	1,114	80	891	93	112
Columbiana	20,236	99	20,034	98	6	283	88	249	97	106
Coshocton	20,345	95	19,328	100	4	402	70	281	88	106
Crawford	25,307	97	24,548	100	7	147	90	132	95	98
Cuyahoga	8,858	98	8,681	100	7	902	95	857	100	107
Darke	44,596	96	42,812	97	7	968	74	716	95	96
Defiance	16,449	93	15,298	95	1	600	120	720	100	105
Delaware	13,080	95	12,426	86	15	834	98	817	88	91
Erie	14,399	98	14,111	93	5	421	84	354	98	107
Fairfield	40,475	98	39,666	98	17	356	60	214	96	99
Fayette	27,329	105	28,695	110	18	1,187	100	1,187	100	110
Franklin	29,436	97	28,553	99	15	1,834	79	1,449	83	91
Fulton	12,731	96	12,222	83	5	1,495	78	1,166	80	95
Gallia	11,061	100	11,061	100	28	396	95	376	100	110
Geauga	5,790	100	5,790	92	8	224	95	213	95	106
Greene	36,755	95	34,918	100	12	2,212	92	2,035	100	105
Guernsey	11,195	107	11,979	100	8	198	65	129	88	102
Hamilton	10,790	95	10,251	95	28	700	75	525	98	105
Hancock	36,509	96	35,049	99	10	602	76	458	95	97
Hardin	18,667	100	18,667	100	9	714	85	607	105	113
Harrison	8,200	100	8,200	101	7	59	90	53	95	104

Henry	19,728	103	20,320	97	4	2,131	76	1,620	98	100
Highland	35,812	103	36,886	94	11	1,100	59	649	88	109
Hocking	11,073	100	11,073	100	13	187	70	131	90	96
Holmes	22,222	105	23,333	110	5	93	95	88	110	102
Huron	30,889	96	29,653	94	7	184	62	114	95	100
Jackson	5,858	98	5,741	95	19	123	72	89	88	105
Jefferson	10,473	99	10,368	102	3	69	100	69	110	96
Knox	26,130	96	25,085	98	7	565	68	384	93	102
Lake	2,585	95	2,456	95	5	771	90	694	100	88
Lawrence	2,716	95	2,580	90	20	111	100	111	88	88
Licking	28,398	98	27,830	99	7	1,799	87	1,565	95	92
Logan	20,113	95	19,107	97	10	1,468	85	1,248	92	102
Lorain	19,354	93	17,999	92	9	212	90	191	93	105
Lucas	7,851	97	7,615	96	5	1,207	71	857	98	79
Madison	8,468	105	8,891	100	15	993	85	844	100	90
Mahoning	16,148	105	16,955	100	8	350	88	308	100	93
Marion	15,493	98	15,183	92	9	451	93	419	100	91
Medina	21,481	101	21,696	99	7	805	83	668	97	109
Meigs	11,116	103	11,449	105	20	351	100	351	100	110
Mercer	31,695	105	33,280	99	5	603	100	603	100	109
Miami	37,992	93	35,333	99	12	211	100	211	100	102
Monroe	15,092	101	15,243	100	7	222	83	184	87	110
Montgomery	37,902	90	34,112	93	10	489	80	391	98	98
Morgan	10,101	103	10,404	99	16	126	102	129	91	106
Morrow	16,161	101	16,323	97	10	364	82	298	97	89
Muskingum	21,606	97	20,958	97	10	535	83	444	96	104
Noble	10,628	104	11,053	105	13	109	88	96	105	109
Ottawa	11,410	100	11,410	95	11	377	103	388	98	75
Paulding	12,322	115	14,170	99	13	4,795	92	4,411	98	88
Perry	14,041	100	14,041	96	15	237	83	197	83	106
Pickaway	53,703	95	51,018	97	23	882	75	662	85	103
Pike	12,830	112	14,370	98	10	151	95	143	95	70
Portage	18,495	95	17,570	89	11	427	83	354	93	98
Preble	38,668	102	39,441	94	15	638	98	625	98	106
Putnam	32,230	101	32,552	93	13	1,257	80	1,006	94	97
Richland	32,545	99	32,220	94	4	452	100	452	94	87
Ross	39,350	98	38,563	93	18	477	74	353	93	98
Sandusky	26,077	98	25,556	90	15	409	100	409	90	83
Scioto	12,992	95	12,342	85	16	219	75	164	70	80
Seneca	48,874	96	46,919	96	4	163	100	163	90	98
Shelby	31,589	100	31,589	98	7	213	90	192	95	109
Stark	42,373	100	42,373	103	2	270	100	270	100	90
Summit	21,294	95	20,229	95	9	324	75	244	88	100
Trumbull	10,595	93	9,853	89	10	418	75	314	90	93
Tuscarawas	21,898	102	22,336	104	5	163	78	127	94	105
Union	12,113	98	11,871	93	12	1,367	100	1,367	100	110
Van Wert	22,135	105	23,242	101	12	1,226	95	1,165	103	108
Vinton	4,208	100	4,208	105	13	123	98	121	95	114
Warren	25,216	101	25,468	100	17	1,337	100	1,337	100	106
Washington	18,429	119	21,931	110	12	168	83	139	105	111
Wayne	46,354	95	44,036	79	9	352	83	292	88	98
Williams	17,926	102	18,285	95	2	642	97	623	97	89
Wood	24,128	97	23,404	97	8	804	103	828	98	104
Wyandot	21,608	101	21,824	102	5	304	87	264	97	115
Average	....	99	....	97	Sep.	....	86.5	....	95	100
Totals	1,888,988	....	1,866,467	....	26	64,385	....	55,687	....	....

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE AREA OF WHEAT AND RYE, AREA AND PRODUCTION OF POTATOES AND THE CONDITION OF OTHER CROPS NOVEMBER 1, 1905.

Counties.	Buck-wheat.	Clover Seed.	Potatoes.				Apples	Hogs.		Com. Fert.
	Prospect compared with an average.	Prospect compared with an average.	Area planted as estimated by township assessors.	Average product per acre.	Total estimated product for 1905.	Affected by rot.	Product compared with an average.	Condition compared with an average	Number to be fattened compared with 1904.	Farmers using on wheat.
	Per cent	Per cent	Acres	Bushels	Bushels	Per cent	Per cent	Per cent	Per cent	Per cent
Adams	....	57	330	100	33,000	2	25	97	82	85
Allen	....	25	757	72	54,504	12	13	87	85	10
Ashland	50	34	942	74	69,708	16	14	86	91	52
Ashtabula	91	74	4,044	77	311,388	18	9	100	96	89
Athens	100	68	480	94	45,120	5	28	99	89	89
Auglaize	100	52	951	88	83,688	13	25	98	80	18
Belmont	....	73	1,068	122	130,296	7	21	97	88	58
Brown	....	88	532	82	43,624	5	22	100	95	80
Butler	100	33	1,349	101	136,249	15	18	96	88	4
Carroll	80	98	499	91	45,409	5	24	86	90	91
Champaign	....	44	400	53	21,200	16	16	88	80	59
Clark	100	60	960	95	91,200	10	15	100	90	6
Clermont	90	80	1,092	65	70,980	6	14	95	93	50
Clinton	75	85	375	58	21,750	3	11	94	86	81
Columbiana	91	88	2,446	91	222,586	8	16	94	94	86
Coshocton	65	83	867	88	76,296	5	24	84	69	70
Crawford	....	58	1,447	75	108,525	10	7	80	80	50
Cuyahoga	100	....	6,490	78	506,220	13	17	98	98	97
Darke	75	34	1,700	73	124,100	7	29	93	85	24
Defiance	60	68	916	70	64,120	15	23	78	88	10
Delaware	50	31	502	108	54,216	7	15	94	88	80
Erie	91	56	3,354	105	352,170	14	30	93	86	57
Fairfield	100	57	993	110	109,230	2	31	93	86	80
Fayette	....	55	95	63	5,985	5	5	105	85	80
Franklin	91	61	2,720	97	263,840	5	21	98	96	46
Fulton	86	60	1,200	73	87,600	3	8	97	92	1
Gallia	....	88	242	150	36,300	2	15	100	105	78
Geauga	98	100	3,389	71	240,619	16	16	97	96	79
Greene	....	50	901	100	90,100	....	10	90	100	75
Guernsey	90	77	377	102	38,454	14	13	99	92	79
Hamilton	....	80	3,761	100	376,100	8	23	93	87	85
Hancock	....	40	1,020	75	76,500	11	14	97	94	24
Hardin	100	38	1,537	83	127,571	10	13	93	95	18
Harrison	75	86	193	85	16,405	3	17	96	88	79

Henry	90	53	832	45	37,440	....	28	100	102	5
Highland	85	59	321	71	22,791	7	23	89	84	87
Hocking	90	32	662	60	39,720	5	24	75	100	95
Holmes	78	87	531	90	47,790	12	10	100	95	75
Huron	62	48	1,344	71	95,424	7	28	96	80	95
Jackson	100	20	189	112	21,168	6	19	97	90	96
Jefferson	110	81	683	86	58,738	8	16	88	85	89
Knox	68	64	436	87	37,932	12	8	97	83	75
Lake	88	90	1,823	74	134,902	12	28	98	92	52
Lawrence	100	100	281	65	18,265	5	17	95	75	83
Licking	77	70	1,566	101	158,166	4	13	95	87	51
Logan	75	48	694	75	52,050	11	11	94	92	34
Lorain	90	42	2,941	64	188,224	10	7	91	87	83
Lucas	83	58	3,789	80	303,120	7	29	97	87	20
Madison	....	65	223	100	22,300	3	20	100	100	15
Mahoning	100	30	2,613	50	130,650	12	15	88	78	99
Marion	43	51	1,021	92	93,932	9	33	88	91	33
Medina	95	47	3,376	73	246,448	11	34	93	93	97
Meigs	....	....	666	75	49,950	4	20	100	100	94
Mercer	....	29	838	72	60,336	6	29	91	96	9
Miami	....	42	1,297	67	86,899	5	25	90	93	38
Monroe	85	80	1,355	92	124,760	6	16	93	90	86
Montgomery	....	52	1,414	90	127,260	7	14	92	88	53
Morgan	86	73	457	89	40,673	5	23	92	78	91
Morrow	....	49	868	58	50,344	12	6	92	93	88
Muskingum	80	66	920	104	95,680	4	12	95	84	89
Noble	100	100	635	118	74,930	3	10	99	69	76
Ottawa	60	88	857	63	53,991	3	40	100	100	....
Paulding	63	58	577	88	50,776	1	29	101	100	1
Perry	88	77	627	68	42,636	4	18	94	86	97
Pickaway	....	62	342	102	34,884	4	35	96	88	59
Pike	68	23	653	75	48,975	8	20	98	90	30
Portage	73	63	8,085	68	549,780	12	15	84	92	88
Preble	....	43	464	94	43,616	4	24	98	96	97
Putnam	78	41	969	54	52,326	4	19	89	83	3
Richland	95	29	1,809	51	92,259	11	24	87	92	71
Ross	100	38	720	89	64,080	4	19	95	96	68
Sandusky	....	63	2,866	93	266,538	1	13	85	70	48
Scioto	65	53	1,155	95	109,725	1	28	90	87	74
Seneca	....	43	1,871	63	117,873	3	19	91	91	83
Shelby	80	55	673	68	45,764	10	18	99	95	63
Stark	....	50	4,434	57	252,738	10	18	92	92	48
Summit	90	39	3,618	67	242,406	11	16	92	76	82
Trumbull	70	38	3,636	57	207,252	10	15	93	90	79
Tuscarawas	88	62	1,652	124	204,848	4	15	97	88	41
Union	....	48	283	97	27,451	3	20	99	86	25
Van Wert	....	21	526	99	52,074	2	17	100	93	....
Vinton	87	62	218	75	16,350	2	18	97	87	93
Warren	....	58	1,079	80	86,320	6	10	103	95	49
Washington	100	98	1,967	117	230,139	6	26	100	75	86
Wayne	75	53	6,587	111	731,157	3	23	92	90	86
Williams	85	69	754	61	45,994	8	21	96	92	10
Wood	80	53	1,762	72	126,864	1	31	98	93	6
Wyandot	80	60	764	59	45,076	8	18	99	99	28
Average	83	59	....	81	....	7	19	94	89	60
Totals	....	....	128,652	....	10,396,837	....	....	....	....	....

OFFICIAL REPORT

OF THE

OHIO DEPARTMENT OF AGRICULTURE

ON THE

Acreage and Product of Corn and the Condition of Other Crops, December 1, 1905.

The following report presents a careful estimate of corn production for the present year, and the condition of other crops, as computed from returns received from the regular correspondents of the Department.

WHEAT	Condition compared with an average	98 per cent.
"	Amount of crop of 1905 sold as soon as threshed	41 per cent.
"	Damage to growing crop by Hessian fly	2 per cent.
"	Damage to growing crop by white grub	1 per cent.
CORN	Area planted in 1905 as returned by township assessors	2,856,028 acres.
"	Average yield per acre	38.8 bushels.
"	Total estimated product for 1905	110,918,432 bushels.
"	Put into silo	3 per cent.
"	Average date cribbing began	October 17.
CLOVER	Area sown in 1904 cut for seed	32 per cent.
"	Average yield per acre	1.8 bushels.
APPLES	Probable total yield compared with an average	17 per cent.
TOBACCO	Probable average product per acre	888 pounds.
CATTLE	Number being fed for spring market compared with last year	78 per cent.
SHEEP	Number being fed for mutton compared with last year	79 per cent.

The weather conditions during the past month have been very favorable for the growing wheat, and the plant now shows a gain of one point over the fine condition reported one month ago. Its present estimated condition is reported at 98 per cent. of an average. This excellent condition is very general over the state, there being but six counties where it is reported lower than 90 per cent., while thirty-seven counties report the condition equal to or better than a good average. The fields are covered with a fine stand, the plant being well rooted, and is now in good condition to withstand the rigors of severe weather. The damage reported by Hessian fly is very slight and refers almost wholly to the very early sown wheat. The amount of the crop sold as soon as threshed is about the same percentage as that reported last year.

This is the first report of the year giving an estimate of the production of corn in bushels. Although the corn area this year was 127,460 acres less than the original area reported by the township assessors for the harvest of 1904, the total production for the state exceeds that estimated crop by 18,924,984 bushels. This is due to the high average yield per acre, which was eight bushels per acre greater than last year. Excessive rains delayed planting, and the crop generally was late, but with the excellent weather conditions prevailing it was cribbed in good condition.

As indicated in previous reports, the apple crop was almost a failure. The total yield is estimated at seventeen per cent. of an average.

Pastures are still green, and farmers, generally, have not commenced winter feeding. Hog cholera is reported in some localities.

OFFICIAL REPORT OF THE OHIO DEPARTMENT OF AGRICULTURE ON THE ACREAGE AND PRODUCT OF CORN, AND THE CONDITION OF OTHER CROPS, DECEMBER 1, 1905.

Counties.	Wheat.				Corn.						Clover.		Apples.	Tobacco.	Cattle.	Sheep.
	Condition compared with an average.	Amount of crop of 1905 sold as soon as threshed.	Damage to growing crop by Hessian fly.	Damage to growing crop by white grub.	Area planted in 1905 as returned by township assessors.	Average yield per acre.	Total estimated product for 1905.	Put into silo.	Date cribbing began, days after October 1st.	Area sown in 1904 cut for seed.	Average yield per acre.	Probable total yield compared with an average.	Probable average product per acre.	Number being fed for spring market compared with last year.	Number being fed for mutton compared with last year.
	Percent	Percent	Percent	Percent	Acres	Bushels	Bushels	Per ct.	Days	Per cent	Bushels	Per cent	Pounds	Per cent	Per ct.
Adams	98	39	4	1	34,589	23.8	823,218	....	19	34	1.13	23	875	79	67
Allen	101	48	....	....	38,590	41.3	1,593,767	3	17	21	.88	18	....	99	78
Ashland	94	32	....	2	21,593	33.7	727,684	....	12	18	.83	10	....	43	70
Ashtabula	101	20	2	1	13,256	35.4	469,262	17	21	5	1.25	10	....	91	86
Athens	106	34	1	1	9,973	33.6	335,093	1	7	35	1.75	25	....	56	59
Auglaize	102	47	1	....	43,828	50.0	2,191,400	....	14	73	1.08	13	....	93	90
Belmont	100	50	....	....	17,733	38.0	673,854	4	15	5	2.00	10	1,600	100	110
Brown	100	43	4	1	41,802	28.8	1,203,898	6	31	14	1.75	30	800	90	60
Butler	101	60	1	....	52,335	45.3	2,370,776	....	15	6	.50	18	1,000	97	100
Carroll	98	23	3	3	11,111	32.0	355,552	2	17	44	1.54	23	....	73	89
Champaign	100	75	3	2	56,995	40.0	2,279,800	4	27	39	.75	21	....	91	99
Clark	95	50	8	....	46,161	46.0	2,123,406	5	25	35	.88	8	....	63	100
Clermont	100	29	1	....	33,038	38.8	1,281,874	3	20	17	2.50	18	833	75	81
Clinton	100	68	....	1	58,216	45.0	2,619,720	1	15	30	1.13	4	800	125	58
Columbiana	97	18	2	1	16,936	34.1	577,518	4	17	24	1.25	12	....	89	98
Coshocton	100	27	3	1	22,683	43.0	975,369	....	18	43	.96	10	....	75	83
Crawford	100	43	10	....	33,732	30.0	1,011,960	....	13	60	1.00	5	....	80	65
Cuyahoga	100	32	1	1	8,184	31.0	253,704	27	18	4	2.00	9	....	100	92
Darke	85	63	3	2	86,311	40.8	3,521,489	1	20	32	.78	18	878	64	23
Defiance	98	43	1	....	31,098	41.8	1,299,896	2	14	63	.92	28	....	82	88
Delaware	95	42	1	....	37,358	30.7	1,146,891	12	19	26	1.00	9	....	65	102
Erie	98	49	....	....	14,145	34.0	480,930	....	15	21	.88	28	....	75	87
Fairfield	95	50	1	1	47,923	43.5	2,084,651	3	18	51	1.05	34	....	82	69
Fayette	105	79	1	1	58,841	50.0	2,942,050	....	25	75	1.25	23	....	75	50
Franklin	92	43	2	....	56,136	38.4	2,155,622	3	23	44	.95	15	....	84	82
Fulton	95	38	2	....	33,409	31.6	1,055,724	2	15	24	.95	21	....	74	91
Gallia	95	15	5	3	18,364	23.7	435,227	....	13	....	....	10	....	70	85
Geauga	94	11	3	2	8,020	38.3	307,166	35	11	5	2.50	10	....	80	63
Greene	100	40	....	....	57,373	32.0	1,835,936	5	17	10	1.00	10	....	75	80
Guernsey	100	20	3	....	12,738	34.0	433,092	3	21	33	1.06	16	500	63	85
Hamilton	90	45	5	3	14,937	43.3	646,772	5	27	25	.50	15	1,000	85	75
Hancock	99	41	1	1	50,932	40.0	2,037,280	....	15	19	.89	12	....	77	82
Hardin	99	65	3	....	45,673	46.8	2,137,496	4	21	42	1.17	13	....	93	81

Harrison	100	23	4	....	9,668	33.1	320,011	3	17	45	1.96	16	....	68	84
Henry	96	46	3	....	50,680	35.0	1,773,800	....	11	29	1.12	29	....	68	98
Highland	95	39	6	4	52,433	37.7	1,976,724	2	21	39	1.17	17	767	69	61
Hocking	100	35	5	3	12,524	29.5	269,458	2	22	29	1.81	29	....	90	65
Holmes	110	21	3	....	20,682	38.5	796.257	1	17	39	1.50	14	....	102	81
Huron	93	47	1	....	30,651	39.4	1,207,649	2	14	29	1.02	20	....	66	76
Jackson	94	45	1	....	10,136	35.4	358,814	....	21	25	....	23	....	78	80
Jefferson	103	27	3	....	10,149	36.0	365,364	4	17	53	1.76	20	....	65	85
Knox	100	35	3	1	30,753	38.3	1,177,840	1	15	36	.92	7	....	80	97
Lake	97	17	....	....	5,043	28.0	141,204	8	14	....	2.50	14	....	87	100
Lawrence	93	37	2	2	12,729	33.1	421,330	....	15	18	.88	16	1,000	77	85
Licking	98	52	1	1	47,158	32.0	1,509,056	1	15	46	1.11	13	....	75	78
Logan	97	58	3	....	45,319	39.1	1,771,972	1	16	61	1.03	12	....	74	73
Lorain	94	41	1	1	18,287	36.1	660,160	4	17	7	1.71	12	....	71	69
Lucas	99	83	1	....	21,004	35.7	749,842	5	18	70	1.33	30	....	103	100
Madison	98	81	1	....	72,450	38.7	2,803,815	....	13	58	.94	19	....	85	90
Mahoning	100	36	2	....	13,095	32.0	419,040	8	25	4	1.00	12	....	82	81
Marion	92	58	3	1	44,514	43.1	1,918,553	....	17	42	.86	19	....	82	79
Medina	99	30	1	....	18,171	35.1	637,802	2	11	7	.83	13	1,000	64	82
Meigs	105	30	3	....	12,039	40.0	481,560	2	23	10	1.00	20	....	67	53
Mercer	94	52	3	....	46,038	45.0	2,071,710	....	19	37	1.25	26	....	63	75
Miami	98	60	....	....	53,201	48.3	2,569,608	1	17	37	.58	5	783	90	90
Monroe	100	5	....	....	17,237	33.3	573,992	....	14	32	2.00	19	1,133	53	10
Montgomery	95	50	3	....	45,364	40.0	1,814,560	3	20	30	1.25	18	750	58	80
Morgan	99	28	2	1	12,951	38.6	499,909	....	22	23	1.21	16	....	72	65
Morrow	96	38	2	2	25,105	30.7	770,723	....	18	34	.61	3	....	94	88
Muskingum	101	25	2	....	24,677	40.0	987,080	2	13	44	.86	12	....	80	83
Noble	104	28	1	1	13,792	38.8	535,129	....	10	18	.75	24	1,100	55	85
Ottawa	94	58	3	1	19,987	38.7	773,497	2	16	42	1.11	26	....	83	78
Paulding	100	54	....	....	46,859	32.9	1,541,661	....	7	47	.88	28	....	83	83
Perry	101	19	....	1	13,526	35.0	473,410	....	16	71	.94	20	....	85	85
Pickaway	97	42	1	....	67,211	46.0	3,091,706	1	15	47	1.15	27	....	74	55
Pike	100	28	1	....	24,497	30.0	734,910	....	17	15	1.50	12	....	10	....
Portage	93	21	4	....	13,449	32.0	430,368	13	20	5	1.50	17	....	75	93
Preble	94	54	2	1	54,818	43.3	2,373,619	....	24	23	.48	21	742	95	90
Putnam	89	61	2	1	54,358	39.3	2,136,269	....	13	25	.75	9	....	80	74
Richland	88	31	3	2	29,416	37.2	1,094,275	2	13	22	1.00	11	....	60	84
Ross	93	58	2	1	52,700	39.6	2,086,920	1	28	29	.90	16	....	82	80
Sandusky	85	45	10	4	35,211	37.5	1,320,412	....	18	23	1.25	20	....	60	53
Scioto	96	50	....	2	18,449	40.3	743,494	....	20	12	1.75	15	1,000	84	90
Seneca	93	46	....	....	47,664	38.3	1,825,531	....	10	33	.96	12	....	65	86
Shelby	95	69	....	3	46,709	41.3	1,929,081	....	13	50	1.13	9	600	81	53
Stark	103	27	3	1	30,245	34.5	1,043,453	5	17	24	1.08	15	....	82	85
Summit	99	36	4	1	14,654	32.0	468,928	14	14	20	1.00	14	....	70	75
Trumbull	89	26	2	1	12,775	29.1	371,752	21	19	29	1.31	17	....	88	76
Tuscarawas	104	27	4	1	18,868	39.8	750,946	1	22	43	1.03	12	....	89	84
Union	96	60	....	....	44,591	39.4	1,756,885	1	25	48	1.04	19	....	76	87
Van Wert	100	39	1	1	44,549	40.0	1,781,960	....	14	25	.69	15	....	80	81
Vinton	105	20	....	....	9,910	40.0	396,400	....	19	6	....	12	....	50	85
Warren	105	53	2	....	45,131	44.0	1,985,764	9	20	13	1.38	11	775	85	74
Washington	105	33	5	4	18,994	35.8	679,985	....	20	21	1.90	17	600	87	81
Wayne	84	28	....	....	38,460	35.0	1,346,100	....	12	33	1.08	14	1,000	90	60
Williams	101	34	4	2	29,882	30.8	920,365	....	12	38	1.17	22	....	86	94
Wood	97	55	1	1	74,876	38.9	2,912,676	2	12	52	.96	24	....	92	73
Wyandot	100	40	3	....	38,385	48.9	1,877,026	....	11	38	1.21	13	....	95	82
Average	98	41	2	1	....	38.8	....	....	Oct.	....	....	....	....	....	....
Totals..........	....	....	....	....	2,856,028	....	110,918,432	3	17	32	1.18	17	888	78	79

TABLE SHOWING THE ANNUAL PRODUCTION AND PRICE OF WHEAT AND CORN FOR THE YEARS 1850 TO 1904, INCLUSIVE.

Year.	Bushels of Wheat.	Average Number of Bushels per Acre.	Price per Bushel.		Bushels of Corn.	Average Number of Bushels per Acre.	Price per Bushel.	
			Range.	Average.			Range.	Average.
1850	31,500,000	18	$0 70 to $1 10	$0 89	56,619,608	36.8	$0 24 to $0 51	$0 38
1851	25,309,225	15.2	58 to 78	69	61,271,382	36.7	30 to 94	38
1852	23,043,737	14.1	59 to 63	60	58,165,517	33.6	25 to 45	39
1853	17,118,311	12	60 to 85	73	73,436,070	40	37 to 55	42
1854	11,989,110	8	85 to 1 70	1 19	52,171,551	26	40 to 55	49
1855	19,569,320	13.81	1 10 to 2 00	1 54	87,587,434	39.7	35 to 80	67
1856	15,333,837	10.2	90 to 1 70	1 27	57,802,515	27.7	32 to 63	42
1857	25,397,614	14	1 00 to 1 60	1 18	82,555,186	36.6	48 to 80	59
1858	17,655,483	10.4	67 to 1 00	77	50,863,582	27.7	25 to 61	42
1859	13,317,967	7.2	90 to 1 70	1 15	68,780,846	29.5	50 to 90	72
1860	23,640,356	13.8	93 to 1 38	1 17	91,588,704	38.2	39 to 80	50
1861	20,055,424	11	65 to 1 12	93	74,858,878	33.5	28 to 50	34
1862	20,764,887	12	72 to 1 00	86	62,704,887	30	27 to 40	31
1863	20,452,410	11.36	82 to 1 30	1 04	54,614,617	27	35 to 70	53
1864	15,541,885	9.33	95 to 2 12	1 41	54,053,491	27	63 to 1 27	1 03
1865	13,234,139	9	1 25 to 2 07	1 78	68,053,668	35	56 to 1 29	77
1866	5,821,747	4.5	1 75 to 2 80	2 27	80,386,320	36.5	45 to 65	54
1867	13,350,721	11.51	1 95 to 3 50	2 79	63,875,064	29.8	59 to 98	79
1868	16,480,059	11.31	1 90 to 2 65	2 31	76,725,288	34.4	82 to 1 08	92
1869	26,499,729	15.37	1 15 to 1 98	1 57	62,443,346	28.4	57 to 1 10	73
1870	18,726,341	11.29	1 08 to 1 33	1 15	88,565,299	37.5	69 to 1 05	83
1871	22,274,378	13.27	1 10 to 1 55	1 27	98,363,060	36.7	50 to 79	56
1872	18,987,664	11.22	1 13 to 2 08	1 58	103,058,234	40.9	44 to 57	49
1873	21,974,385	12.61	1 30 to 1 80	1 56	84,049,328	35.1	39 to 50	42
1874	26,806,818	14.51	1 03 to 1 60	1 38	101,815,494	39.8	42 to 75	60
1875	17,867,967	9.22	1 03 to 1 75	1 16	97,825,024	34.1	58 to 87	72
1876	15,354,569	10.18	1 00 to 1 50	1 10	112,552,642	36.8	40 to 73	51
1877	27,306,566	15.63	1 08 to 2 15	1 41	101,884,305	32.5	40 to 57	46
1878	35,218,783	16.58	85 to 1 35	1 11	114,839,107	37.8	48 to 49	42
1879	41,052,120	17.78	85 to 1 15	96	96,908,800	34	31 to 45	37
1880	48,540,307	17.20	93 to 1 37	1 16	105,414,504	38.9	42 to 51	42
1881	38,102,633	13.8	88 to 1 39	1 10	78,712,796	31	40 to 87	49
1882	42,112,103	15.59	95 to 1 50	1 32	90,869,137	31	56 to 87	72
1883	27,169,738	10.67	95 to 1 17	1 05	64,001,618	24.2	44 to 76	54
1884	36,396,119	14.4	80 to 1 10	1 01	87,797,813	33.3	40 to 62	53
1885	24,183,430	9.8	72 to 1 09	89	112,192,744	39	37 to 59	47
1886	37,660,681	14	74 to 1 00	88	88,818,556	33.5	32 to 48	39
1887	28,400,000	10.4	71 to 89	80	83,118,838	30.5	34 to 55	40
1888	26,160,994	11.7	71 to 96	85	111,155,506	38.9	44 to 61	52
1889	31,663,448	14.6	73 to 1 15	93	87,838,192	32.3	30 to 49	37
1890	31,509,676	13.8	75 to 1 02	83	63,694,215	24.5	27 to 56	36

1891	45,063,480	17.5	82 to 1 16	99	86,500,000	33	49 to 77	60
1892	38,381,598	14.4	73 to 1 01	90	81,892,100	30.8	39 to 67	48
1893	43,121,599	17.2	52 to 93	64	77,229,446	25	37 to 45	42
1894	45,587,534	20	48 to 56	51	88,805,607	25	35 to 59	45
1895	28,759,647	11.9	53 to 90	66	102,447,445	33.9	24 to 56	41
1896	19,511,788	8.53	55 to 97	72	134,796,274	41	18 to 33	27
1897	36,718,686	16.15	72 to 1 00	88	103,004,970	34.34	22 to 34	28
1898	41,041,671	15.56	64 to 1 45	87	114,214,148	37.35	27 to 41	34
1899	41,469,703	14.02	68 to 77	72	115.138,669	36.74	29 to 40	36
1900	10,866,155	6	70 to 89	75	143,161,675	38	32¾ to 47	40
1901	31,150,373	14.57	64 to 90	77	92,368,811	25.74	39 to 74	52
1902	36,901,212	18.1	63 to 84	74	122,675,349	37.3	40 to 62	56
1903	29,074,367	14.4	70 to 93	78	92,820,349	29.1	41 to 53	45
1904	21,090,222	12.2	90 to 1 15	102	100,529,653	32.8	42 to 50	45
1905 (estimated)	32,157,134	17.1	75 to 1 14	93	109,341,439	38.3	39 to 54	46

TABLE SHOWING THE AVERAGE PRODUCTION AND PRICE OF WHEAT AND CORN BY DECADES.

Decades.	Average bushels of wheat.	Average bushels per acre.	Range of price per bushel.	Average price per bushel.	Average bushels of corn.	Average bushels per acre.	Range of price per bushel.	Average price per bushel.
1850 to 1860	20,023,460	12.29	$0 58 to $2 00	$1 00	64,920,369	33.4	$0 24 to $0 90	$0 48
1860 to 1870	17,584,085	10.91	60 to 3 50	1 61	68,930,426	32	27 to 1 29	64
1870 to 1880	24,656,959	13.29	85 to 2 15	1 27	99,986,129	36.5	38 to 1 05	54
1880 to 1890	34,038,945	13.21	71 to 1 50	1 00	90,991,979	33.5	30 to 87	45
1890 to 1900	38,042,989	15.19	48 to 1 45	77	89,648,770	32	18 to 77	39

AVERAGE PRICES OF OTHER FARM PRODUCTS THAN WHEAT AND CORN IN THE LOCAL MARKETS OF OHIO FROM 1855 TO 1905, INCLUSIVE.

	Barley.	Oats.	Rye.	Hay.	Potatoes.
	Per Bush.	Per Bush.	Per Bush.	Per Ton.	Per Bush.
1855	$1 35	$0 29½	$0 70	$14 71	....
1856	1 58	46	91	21 00	....
1857	58	36	58	13 46	....
1858	67	57	82	15 38	....
1859	76	43	86	17 73	....
1860	69	27	56	12 62	....
1861	60	30	48	11 85	....
1862	1 36	58	76	16 34	....
1863	1 51	78½	1 35	27 16	....
1864	1 28	52	1 15	26 00	....
1865	1 41	42	80	12 63	....
1866	1 53	57	1 28	19 76	....
1867	2 11	69	1 62	14 80	....
1868	2 37	64	1 28	16 42	....
1869	1 26	54	92	17 44	....
1870	1 00	46	91	18 45	....
1871	78	37	85	20 79	....
1872	87	36	76	22 18	....
1873	1 51	48	93	17 16	....
1874	1 41	59	1 06	20 98	....
1875	1 20	38	74	17 66	....
1876	90	37	74	11 67	....
1877	52	29	59	9 86	....
1878	1 00	27	54	10 79	....
1879	89	34	82	15 87	....
1880	98	38	1 04	16 36	....
1881	1 05	50	94	17 90	$1 07
1882	76	39	62	12 39	67
1883	76	34	62	11 63	46
1884	80	32	63	12 81	50
1885	86	30	63	12 16	48
1886	61	29	58	11 17	53
1887	81	33	62	14 79	88
1888	78	26	52	12 74	40
1889	57	27	50	10 56	52
1890	77	48	81	10 58	97
1891	70	33	85	11 25	45
1892	69	33	73	11 10	55
1893	64	32	55	12 55	74
1894	60	35	52	10 95	66
1895	56½	27	53	12 70	49
1896	36	20	36	12 83	28
1897	39	22	39	11 00	48
1898	47	27	51	8 65	57
1899	52	27	62	10 10	49
1900	51	25	59	13 95	43
1901	62	34	60	11 00	60
1902	57	37	54	10 50	65
1903	58	38	59	12 00	75
1904	59	37	60	11 50	80
1905	48	30	50	10 75	55

TABULAR STATEMENT EXHIBITING THE NUMBER OF HORSES, CATTLE, MULES, SHEEP AND HOGS RETURNED BY THE SEVERAL COUNTY AUDITORS, FOR THE YEARS 1904 AND 1905.

Counties.	Number of Horses.		Number of Cattle.		Number of Mules.		Number of Sheep.		Number of Hogs.	
	1904.	1905.	1904.	1905.	1904.	1905.	1904.	1905.	1904.	1905.
Adams	4,723	4,804	10,467	10,346	234	233	5,404	6,448	8,899	7,943
Allen	8,945	9,429	15,690	16,014	99	108	16,380	15,848	21,911	22,416
Ashland	7,768	7,471	15,758	14,475	85	134	33,382	31,538	19,392	15,016
Ashtabula	9,609	9,614	32,186	30,385	26	32	8,829	6,606	5,247	4,163
Athens	5,168	4,495	10,069	9,597	123	87	41,739	39,278	2,945	2,052
Auglaize	8,626	8,729	16,972	16,426	102	148	7,163	6,738	22,179	22,278
Belmont	8,094	8,112	17,221	17,981	502	316	63,307	58,818	9,105	7,208
Brown	6,459	6,362	12,804	12,159	322	332	6,752	7,169	20,849	16,558
Butler	10,435	10,784	16,820	15,967	508	514	6,712	6,485	24,376	20,804
Carroll	4,521	4,340	12,939	12,030	74	84	51,575	49,074	8,509	7,113
Champaign	10,400	10,640	18,297	17,843	295	332	15,993	19,793	35,287	34,731
Clark	10,992	11,213	28,476	17,798	392	475	20,522	20,675	25,352	24,743
Clermont	6,431	6,745	9,987	10,331	491	565	3,654	3,022	13,798	11,460
Clinton	9,459	9,347	15,957	15,604	456	507	15,217	15,217	36.826	38,220
Columbiana	9,927	9,700	21,727	19,835	142	189	24,750	22,080	12,596	10,518
Coshocton	5,720	6,127	16,796	16,213	162	157	74,759	75,654	12,535	9,812
Crawford	8,647	8,768	16,164	16,837	141	145	42,133	39,555	24,216	22,780
Cuyahoga	17,424	18,858	15,977	14,989	62	106	4,711	3,911	2,610	2,185
Darke	16,347	17,150	25,269	23,671	348	377	4,549	4,532	40,934	39,334
Defiance	6,078	6,582	10,358	11,614	49	62	13.889	12,530	15,243	16,683
Delaware	8,139	8,176	20,074	19,047	132	159	37,711	42,664	23,375	17,751
Erie	5,424	5,598	7,762	7,732	16	11	9,908	9,427	7,209	6,415
Fairfield	9,761	10,223	21,140	21,888	148	175	12,055	11,736	32,465	29,035
Fayette	9,033	9,486	18,739	19,765	310	458	7,720	7,659	32,777	35,464
Franklin	14,808	14,978	20,763	20,242	160	297	9,624	8,444	23,624	23,003
Fulton	6,883	6,950	17,524	16,313	22	30	15,455	13,518	22,956	22,688
Gallia	4,486	4,474	10,366	9,843	166	170	9,092	10,658	5,344	4,081
Geauga	5,134	5,102	21.471	20.426	26	33	5,553	4,469	4,183	3,333
Greene	9,659	10,028	17,656	18,523	281	316	15,511	15,599	30,661	28,985
Guernsey	4,928	5,007	13,161	13,457	340	350	60,549	63,849	5,647	4,031

Hamilton	16,483	16,115	17,739	16,635	935	1,014	1,701	1,786	9,431	8,348
Hancock	10,863	10,498	25,100	23,370	50	66	36,130	34,189	36,663	34,198
Hardin	8,304	8,916	19,233	19,017	106	113	31,144	31,947	32,062	28,449
Harrison	4,854	5,092	10,568	10,628	121	103	91,171	95,406	5,404	4,140
Henry	6,833	7,157	14,294	13,433	82	53	6,926	5,776	18,743	18,167
Highland	8,166	8,390	20,046	20,463	300	306	13,327	17,456	32,627	28,899
Hocking	3,583	3,571	9,324	8,884	64	70	14,121	13,396	5,309	4,078
Holmes	7,292	6,825	19,271	16,094	54	59	23,733	24,428	18,154	15,738
Huron	7,907	8,111	15,138	14,132	74	88	48,254	45,977	14,252	11,203
Jackson	3,214	3,218	9,724	10,077	764	806	4,501	3,829	3,446	3,012
Jefferson	5,580	5,661	11,444	10,876	361	342	42,774	40,593	5,811	4,966
Knox	7,873	8,166	18,449	18,243	140	182	96,505	99,078	21,090	16,253
Lake	4,412	4,476	7,680	7,479	4	13	3,792	3,610	2,057	1,546
Lawrence	3,805	3,635	8,734	8,167	510	408	1,499	1,414	4,078	3,050
Licking	13,646	12,272	29,828	28,674	169	168	89,546	85,580	28,555	23,269
Logan	9,276	9,876	18,437	17,629	121	143	26,623	25,986	29,309	27,000
Lorain	9,132	9,410	22,170	21,224	40	22	16,272	15,518	8,412	7,001
Lucas	9,504	8,829	10,268	9,876	38	47	1,873	1,492	9,023	8,952
Madison	9,501	9,478	19,876	20,936	284	284	15,131	15,653	33,243	34,646
Mahoning	8,876	6,053	19,736	16,429	97	110	17,168	13,954	7,457	7,058
Marion	7,656	7,761	15,681	15,223	175	161	46,277	44,210	29,900	27,005
Medina	8,449	9,036	17,891	17,131	109	78	21,705	19,339	11,076	9,173
Meigs	4,506	4,261	9,688	9,452	233	224	24,350	25,364	3,272	2,276
Mercer	9,696	9,794	18,763	18,135	152	165	9,032	8,939	27,180	25,056
Miami	11,328	10,689	15,928	14,205	370	385	2,647	1,737	20,090	15,918
Monroe	5,036	4,925	11,555	11,771	59	56	9,109	9,641	5,202	4,304
Montgomery	15,698	15,719	19,738	18,897	280	353	2,069	1,991	23,584	21,598
Morgan	4,578	4,593	11.918	11,999	39	35	55,758	59,973	4,936	3,753
Morrow	7,350	7,503	15,294	15,292	66	68	61,644	61,756	15,843	12,173
Muskingum	9,092	9,090	23,915	23,023	183	178	81,016	85,334	11,142	9,369
Noble	4,392	4,440	13,864	14,866	34	35	45,358	49,698	6,072	4,362
Ottawa	5,564	5,210	8.960	8,198	48	45	4,787	4,408	8,089	7,909
Paulding	6,478	6,426	8,342	7,296	84	96	6,938	7,436	8,331	10,816
Perry	5,799	6,097	13,776	14,471	136	70	26,038	25,346	9,117	8,028
Pickaway	9,837	9,602	20,086	21,824	335	294	6,027	6,063	24,644	26,869
Pike	3,818	4,032	6,418	6,567	205	218	3,704	3,762	6,573	5,778
Portage	8,622	8,550	22,665	21,339	111	165	15,343	13,249	8,085	6,850
Preble	9,983	9,972	18,367	17,035	353	388	5,031	3,866	33,080	30,869
Putnam	8,987	8,874	19,328	17,672	63	79	9,851	10,143	30,199	31,409
Richland	9,203	9,225	18,906	18,650	140	162	37,747	34,854	23,617	18,763
Ross	10,236	9,659	20,744	19,469	181	220	7,890	8,075	25,372	22,941
Sandusky	8,760	8,618	14,966	14,212	44	39	14,585	13,528	19,872	22,084
Scioto	5,458	5,449	8,854	9,057	519	612	1,767	1,128	7,377	6.251
Seneca	9,484	10,001	19,423	18,813	130	142	35,427	35,049	29,925	32,238
Shelby	9,014	8,975	16,447	15,500	109	107	4,800	4,573	19,803	17,133

TABULAR STATEMENT EXHIBITING THE NUMBER OF HORSES, CATTLE, MULES, SHEEP AND HOGS RETURNED BY THE SEVERAL COUNTY AUDITORS, FOR THE YEARS 1904 AND 1905—Concluded.

Counties.	Number of Horses.		Number of Cattle.		Number of Mules.		Number of Sheep.		Number of Hogs.	
	1904.	1905.	1904.	1905.	1904.	1905.	1904.	1905.	1904.	1905.
Stark	14,501	13,131	26,212	22,303	315	289	15,283	11,194	21,938	16,707
Summit	8,129	9,468	20,067	19,510	116	130	5,416	4,588	9,300	7,967
Trumbull	10,229	11,309	29,922	26,849	77	88	13,367	12,206	6,795	6,259
Tuscarawas	7,350	8,072	20,230	20,485	225	168	26,686	26,276	11,612	11,170
Union	8,459	8,067	16,544	15,879	104	102	29,830	32,165	32,119	28,386
Van Wert	8,422	8,651	12,761	13,574	202	234	10,394	10,088	24,236	23,653
Vinton	2,295	2,290	5,988	6,193	125	149	16,075	15,685	2,109	1,729
Warren	9,439	9,403	15,261	14,551	442	447	6,136	6,378	20,226	19,281
Washington	7,120	6,942	14,629	14,591	150	150	26,282	27,711	6,623	5,026
Wayne	12,267	12,191	25,348	23,758	281	308	17,421	17,211	27,830	22,529
Williams	6,931	7,447	14,923	14,390	58	55	25,722	22,582	23,758	21,088
Wood	11,278	11,565	20,869	19,349	78	94	14,681	11,032	32,096	31,460
Wyandot	7,705	8,078	14,406	13,542	131	159	60,090	58,913	29,062	25,229
Totals	726,281	730,156	1,464,326	1,404,688	16,990	18,047	2,033,072	2,005,553	1,536,260	1,404,185

Horses	3,875 increase.
Cattle	59,638 decrease.
Mules	1,057 increase.
Sheep	27,519 decrease.
Hogs	132,075 decrease.

ANNUAL AGRICULTURAL STATISTICS.

1904-1905.

The following agricultural statistics, as returned by township assessors in May, are reported to the Secretary of Agriculture by the county auditors, in accordance with Section 1523 of the Revised Statutes.

The crops, to which these statistics relate, being for the preceding year, have value as matters of record and reference, and as a basis for comparison in estimating the condition or prospects of crops during the growing and harvest seasons, which estimates are published monthly by the Department of Agriculture, and give valuable information to farmers at times when most needed and when of the most benefit.

The annual agricultural statistics here published present a very vivid picture of the importance of Ohio as an agricultural state, and the great diversity of her agricultural products, and point conclusively to the counties most noted for any particular production as well as the range of production in the different counties, and in these respects also have interest and value.

In the case of fall seeded grain crops, the area is returned for the current year's harvest, and for the crops of corn and potatoes the estimated area is returned for the anticipated harvest of the year. These stated areas enable the Department to make valuable estimates on probable total production of growing crops and with considerable degree of correctness.

AGRICULTURAL STATISTICS.

Counties.	Wheat.			Rye.			Buckwheat.		Oats.		
	Acres sown for harvest 1904.	Bushels produced 1904.	Acres sown for harvest 1905.	Acres sown for 1904.	Bushels produced 1904.	Acres sown for 1905.	Acres sown 1904.	Bushels produced 1904.	Acres sown 1904.	Bushels produced 1904.	Acres (estimated) sown for 1905.
Adams	14,920	175,516	18,954	682	6,935	964	6	60	4,347	81,223	5,614
Allen	18,895	201,866	28,299	321	3,151	....	....	....	14,857	605,147	13,650
Ashland	25,490	259,605	25,300	324	2,814	368	47½	396	17,879	713,459	16,797
Ashtabula	4,645	18,432	5,828	622	6,362	1,274	5,195	92,476	21,407	592,084	24.182
Athens	6,322	86,082	7,104	105	1,020	64	53	777	1,847	47,550	2,707
Auglaize	30,536	332,561	33,277	259	3,872	377	34	204	24,775	961,681	21,174
Belmont	13,569	124,515	14,829	138	1.440	270	66	740	9,868	331,365	9,790
Brown	15,125	158,472	18,024	2,973	28,784	4,241	19	720	8,495	211,317	10.514
Butler	46,813	654,191	52,806	271	3,411	501	1	8	10,617	377,936	10,986
Carroll	11,909	121,654	12,500	77	1.562	177	30	489	12,040	373,558	12,293
Champaign	20,404	180,371	20,775	451	5.490	1,336	30	159	30,083	1,383.138	29,159
Clark	26,097	275,020	26,496	720	9,866	2,125	6	60	16.330	733,043	15,414
Clermont	8,553	86,641	9,928	1,872	20,341	2,894	....	....	12.001	347,474	12,836
Clinton	29,800	489,514	32,171	697	10,278	1,114	3	25	9.051	377,170	9,919
Columbiana	19,523	264,923	20,236	206	2.309	283	83	3,250	17,356	563,103	17,580
Coshocton	16,705	148.294	20,345½	175	1,671	402	88	1,636	12.073	412,558	12,035
Crawford	24,086	390,777	25,307	86	1.370	147	16	110	24,210	1,096,031	25,973
Cuyahoga	7,310	89,477	8,858	436	6.858	902	17	143	13,629	540,886	14,319
Darke	43,964	335,161	44,596	397	4,741	968	11	167	42,256	1,935,936	38,768
Defiance	15,381	174,806	16,449	330	5,596	600	88	1,146	29.309	1,099,256	28,632
Delaware	12,022	156,652	13,080	594	6,424	834	12	180	13,894	467,325	14,175
Erie	12,807	178,772	14.399	226	2,848	421	309	4,926	14,423	620,372	14,314
Fairfield	37.835	606,372	40,475	422	5,993	356	31	200	6,473	241,781	6,121
Fayette	25,556	392,219	27,329	614	7,636	1,187	15	886	12,184	583,540	12,815
Franklin	29,162	415,764	29,436	1,322	23.071	1,834	14	80	17,895	690,448	16,755
Fulton	11,083	125,359	12,731	734	6,389	1,495½	209	3,458	27,526½	1,137,696	26,878½
Gallia	10,052	98,537	11,061	377	3,132	396	6	45	3,049	52,780	4,518
Geauga	4,862	39,693	5,790	104	1,363	224	707	12,078	12,337	421,081	13,669
Greene	34,533	357,349	36,755	885	12,047	2,212	12	75	11,236	487,888	11,216
Guernsey	9,345	97,442	11,195	171	1,466	198	69	824	6,595	202,027	7,086
Hamilton	10,650	140,508	10,790	481	5,483	700	175	5,568	4,286	116,309	4,116
Hancock	31,470	298,599	36,509	227	3,359	602	6	66	25,624	1,027,963	20,261

Hardin	17,619½	132,458	18,667½	185	2,285	714½	22	434	20,249	949,606	17,257½
Harrison	7,575	62,962	8,200	67	646	59	43	405	7,301	264,836	7,060
Henry	15,513	146,945	19,728	1,175	21,349	2,131	27	623	32,516	1,455,283	30,655
Highland	32,059	440,412	35,812	752	8,910	1,100	1	10	7,333	190,146	7,113
Hocking	8,773	113,155	11,073	190	1,975	187	110	1,580	2,667	64,811	3,610
Holmes	21,999	227,257	22,222	355	883	93	31	434	17,418	1,014,122	17,878
Huron	27,948	395,487	30,889	110	1,495	184	36	603	29,118	1,203,369	29,840
Jackson	5,232	50,620	5,858	70	641	123	94	1,445	1,335	28,638	1,445
Jefferson	9,623	88,091	10,473	51	495	69	9	114	10,150	350,573	10,456
Knox	25,760	419,860	26,130	610	5,186	565	....	....	11,296	323,874	11,036
Lake	3,019	20,185	2,585	555	7,428	771	473	8,340	7,071	326,526	7,123
Lawrence	3,523	27,223	2,716	72	504	111	....	....	6,030	67,614	4,519
Licking	24,585	334,272	28,398	2,154	28,194	1,799	120	1,669	13,517	492,783	15,301
Logan	21,125	99,640	20,113	1,291	10,055	1,468	70	761	24,377	1,181,388	21,854
Lorain	18,695	258,228	19,354	191	3,132	212	11	255	21,595	816,949	21,186
Lucas	5,660	53,864	7,851	690	8,904	1,207	714	10,955	18,823	683,699	16,353
Madison	11,161	108,951	8,468	456	7,325	993	....	....	37,046	1,411,398	40,814
Mahoning	13,951	184,228	16,148	237	2,763	350	450	4,016	15,679	586,369	17,302
Marion	15,505	222,524	15,493	308	4,937	451	11	75	26,380	1,267,793	27,788
Medina	19,820	308,927	21,481	508	8,410	805	1	12	19,567	829,508	18,654
Meigs	9,713	119,100	11,116	239	2,940	351	17	151	2,820	61,965	4,127
Mercer	29,460	417,556	31,695	285	4,028	603	1	6	28,454	1,164,130	31,447
Miami	35,067	406,288	37,992	89	905	211	2	36	26,156	1,261,234	25,028
Monroe	13,443	138,499	15,092	222	2,087	222	219	2,800	7,220	186,766	9,143
Montgomery	30,842	318,074	37,902	216	3,762	489	....	198	18,770	810,016	13,749
Morgan	8,234	160,337	10,101	100	1,747	126	36	621	3,270	105,393	3,914
Morrow	15,906	207,837	16,161	247	2,776	364	2	15	15,638	672,992	17,620
Muskingum	17,465	235,024	21,606	464	6,358	535	15	195	7,555	256,102	8,315
Noble	9,308	106,083	10,628	82	880	109	23	189	3,757	108,506	4,902
Ottawa	9,210	122,532	11,410	139	1,920	377	4	190	14,692	453,961	13,632
Paulding	9,437	104,008	12,322	3,130	84,277	4,795	92	850	32,069	1,231,422	31,539
Perry	12,662	317,231	14,041	280	4,408	237	110	1,844	2,879	96,994	2,897
Pickaway	49,603	729,031	53,703	559	6,834	882	31	355	7,159	320,093	8,213
Pike	9,335	133,069	12,830	240	2,387	151	141	2,147	4,417	98,207	4,810
Portage	18,202	239,819	18,495	300	2,854	427	357	7,349	18,563	688,278	19,301
Preble	35,503	327,397	38,668	193	3,087	638	11	10	15,830	670,320	13,609
Putnam	22,714	199,355	32,230	655	13,435	1,257	16	82	26,767	1,029,373	18,545
Richland	31,281	363,954	32,545	292	3,871	452	24	318	24,521	1,144,392	26,289
Ross	36,082	551,973	39,350	501	4,904	477	92	1,310	4,668	114,947	4,144¾
Sandusky	23,698	259,329	26,077	197	3,038	409	26	480	26,941	1,127,573	23,826
Scioto	12,497	164,860	12,992	166	836	219	199	3,110	4,048	84,334	4,932
Seneca	42,755	547,829	48,874	71	1,205	163	15	264	32,613	1,332,190	28,260
Shelby	30,061	349,980	31,589	36	1,335	....	....	....	29,503	1,348,198	32,358
Stark	40,352	601,387	42,373	187	3,313	270	59	833	30,474	1,261,165	31,439
Summit	19,703	274,878	21,294	152	2,125	324	91	1,121	16,722	639,708	17,244
Trumbull	8,705	70,359	10,595	199	1,844	418	1,614	29,080	19,131	547,910	21,156
Tuscarawas	21,708	190,983	21,898	161	1,523	163	96	1,129	17,974	940,594	17,965
Union	14,943	166,324	12,113	1,002	14,848	1,367	18	125	22,593	892,890	22,223
Van Wert	19,592	278,222	22,135	558	9,719	1,226	13	196	26,357	1,093,015	25,607
Vinton	3,894	40,685	4,208	118	873	123	103	1,504	1,606	37,190	2,048
Warren	23,719	304,870	25,216	881	9,186	1,337	10	56	11,504	404,563	10,877
Washington	16,848	219,297	18,429	226	1,912	168	109	2,090	9,999	170,838	8,936
Wayne	44,587½	629,155	46,354½	282½	3,554	352	44	722	30,123	1,349,213	31,467
Williams	17,806	187,200	17,926	334	4,839	642	70	1,085	25,410	1,048,271	26,793
Wood	16,223	157,958	24,128	251	3,533	804	91	1,265	60,219	2,289,932	54,462
Wyandot	21,495	279,306	21,608	2,566	1,179	304	6	66	19,208½	927,655	22,226
Totals	1,720,623	21,090,222	1,888,988	42,996	550,924	63,851	13,338½	224,475	1,467,052	58,312,740	1,454,554¾

AGRICULTURAL STATISTICS—Continued.

Counties.	Winter Barley.			Spring Barley.			Corn.			Ensilage Corn.		Broom Corn.	
	Acres sown 1904.	Bushels produced 1904.	Acres sown for 1905.	Acres sown 1904.	Bushels produced 1904.	Acres (estimated) sown for 1905.	Acres planted 1904.	Bushels (shelled) produced 1904.	Acres planted (estimated) for crop of 1905.	Acres planted 1904.	Acres planted (estimated) for crop of 1905.	Acres planted 1904.	Pounds broom brush produced 1904.
Adams	......	......	......	......	......	......	33,092	833,485	34,589	......	......	......	......
Allen	64	1,195	18	297	4,799	267	31,136	1,019.187	38,590	......	......	......	......
Ashland	24	72	26	10	264	33	21.145	539,908	21,593	27	8	......	......
Ashtabula	11	131	37	34	452	35	13,218	51,399	13.256	3,464	2,797	6	12
Athens	8	500	8	......	......	......	10,674	386.926	9.973	79	86	......	......
Auglaize	......	......	......	58	1,893	125	47,868	1.482.575	43.828	10	10	4	1,080
Belmont	1	20	7	13	332	23	18,752	763.644	17,733	362	373	1	1,000
Brown	......	......	......	......	......	......	45,181	1.173.390	41,802	48	421	20	......
Butler	337	6,057	406	202	4,810	110	53.345	1,987.922	52.335	82	38	20	6,302
Carroll	......	......	......	2	56	......	11,674	394.549	11.111	112	69	......	......
Champaign	4	100	10	159	4,601	402	60,455	2,334.679	56,995	55	40	......	......
Clark	1	4	10	107	2,419	210	50.329	2,195,070	46,161	333	187	......	......
Clermont	10	300	......	10	......	121	36,161	776.335	33.038	131	39	......	......
Clinton	11	231	19	12	397	76	58,937	2,375.597	58,216	66	80	......	......
Columbiana	267	3,375	......	......	......	7	16,885	427,472	16.936	1,602	1,180	......	......
Coshocton	......	......	......	11	240	2	24.417	882.280	22,683	39	29	......	......
Crawford	19	621	13	63	1,371	77	36,528	1,105.184	33.732	28	23	......	......
Cuyahoga	5	200	4	3	65	35	8,147	128,609	8,184	2,524	1,780	......	......
Darke	59	240	48	127	4,284	91	91.981	3,441,497	86.311	15	13	19	10.450
Defiance	12	171	21	1,798	50,383	1,525	33.600	1,312,452	31.098	8	4,000	15	750
Delaware	......	......	......	......	......	......	37,146	1,141.545	37,358	192	189	......	......
Erie	16	620	35	236	6,763	181	15.468	453.398	14,145	52	42	......	......
Fairfield	7	93	10	3	85	13	49.198	2,089,842	47.923	50	39	......	......
Fayette	17	245	8	31	550	25	59,671	2,174.930	58,841	420	420	7	10
Franklin	......	......	......	5	75	193	61.754	2.251,999	56,136	300	335	55	12
Fulton	76½	2,945	9	1,274	35,269	1,714	37,005	1,377.766	33.409½	73	53	12	4,000
Gallia	......	......	......	......	......	......	21.261	446,887	18.364	10	12	1	100
Geauga	......	......	......	4	99	10	7.286	49,316	8,020	3,524	2,670	4	......
Greene	34	1,075	44	......	......	......	59,948	2,391.445	57,373	145	130	......	......
Guernsey	......	......	......	......	......	......	15.909	526,788	12,738	98	82	1	400
Hamilton	2	......	......	32	400	24	17,421	548,113	14,937	69	91	......	......
Hancock	69	1,330	39	414	8,959	385	54,337	1,607,571	50,932	66	34	......	......

Hardin	14	520	40½	55	1,035	63	42,402	1,162,337	45,673	17	18	....	.....
Harrison	1	14	3	2	31	102	10,506	360,309	9,668	131	80	....	.....
Henry	84	2,620	27	5,655	151,610	5,598	59,307	2,059,519	50,680	10	10	....	.....
Highland	1	5	5	7	240	5	55,368	1,783,295	52,433	50	60	17	10,500
Hocking	....	....	....	....	....	9	12,805	359,615	12,524	....	....	....	.....
Holmes	....	....	....	....	....	....	19,265	733,157	20,682	5	4	....	.....
Huron	1	20	....	77	2,096	47	31,271	852,582	30,651	119	91	4	3,050
Jackson	....	....	....	....	....	....	12,126	261,851	10,136	....	....	....	.....
Jefferson	4	66	....	3	53	81	10,438	377,123	10,149	221	160	....	.....
Knox	....	....	....	....	....	....	31,405	81,512	30,753	....	....	....	.....
Lake	10	100	7	41	556	336	6,524	102,975	5,043	297	246	3	.....
Lawrence	....	....	....	....	....	....	16,108	296,059	12,729	28	23	....	.....
Licking	6	158	....	14	410	21	48,290	1,826,822	47,158	122	119	4	2,000
Logan	22	592	130	83	2,164	45	49,086	1,765,760	45,319	26	5	....	5
Lorain	5	90	....	62	1,188	83	18,995	436,495	18,287	1,138	900	....	.....
Lucas	98	3,375	121	684	19,868	780	23,338	1,057,301	21,004	613	659	....	.....
Madison	31	990	70	68	2,040	309	75,115	2,626,487	72,450	....	....	8	10,000
Mahoning	....	....	....	....	....	....	13,269	212,568	13,095	1,283	1,032	....	.....
Marion	....	....	....	20	560	20	46,232	1,631,619	44,514	105	15	....	.....
Medina	....	....	11	....	....	....	18,130	435,209	18,171	447	388	....	.....
Meigs	15	....	....	....	....	....	13,978	319,618	12,039	12	....	11	850
Mercer	6	140	14	453	13,947	723	52,434	1,370,035	46,038	4	7	1	700
Miami	15	....	....	17	301	6	62,348	2,149,851	53,201	6	4	20	6,800
Monroe	....	....	....	....	....	....	16,335	490,920	17,237	....	....	....	.....
Montgomery	17	....	30	50	1,730	14	48,845	1,908,834	45,364	36	32	14	11,500
Morgan	....	....	....	1	21	1	13,574	496,704	12,951	10	....	....	.....
Morrow	....	....	....	5	75	4	28,995	770,324	25,105	63	65	....	.....
Muskingum	....	....	1	4	160	22	26,532	1,072,461	24,677	178	126	....	.....
Noble	....	....	....	....	....	1	15,338	508,599	13,792	17	5	....	.....
Ottawa	....	....	....	2,099	51,638	1,945	21,580	733,524	19,987	3	9	....	.....
Paulding	31	1,048	120	4,701	126,268	3,071	50,139	2,548,787	46,859	....	....	....	.....
Perry	....	....	....	3	68	2	16,121	611,585	13,526	....	5	4	937
Pickaway	....	....	....	8	100	3	73,205	2,976,494	67,211	12	12	1	200
Pike	8	....	....	....	....	7	25,820	797,758	24,497	....	12	4	1,150
Portage	5	140	2	8	192	11	13,114	115,182	13,449	2,095	1,687	....	.....
Preble	....	....	....	14	424	41	55,119	2,064,821	54,818	....	....	4	1,700
Putnam	60	1,425	31	3,544	98,786	2,934	60,638	1,969,480	54,358	....	....	....	.....
Richland	3	....	18	39	820	52	29,068	854,279	29,416	128	89	....	.....
Ross	....	....	17	672	34,085	685	56,951½	2,398,009	52,699½	10	98	....	.....
Sandusky	14	600	12	394	7,761	212	46,773	1,202,653	35,211	26	....	....	.....
Scioto	12	135	....	70	2,280	40	22,140	667,968	18,449	200	....	1	600
Seneca	18	640	....	96	2,453	33	49,884	1,673,541	47,664	....	....	....	.....
Shelby	8	100	14	3	60	6	46,584	1,710,312	46,709	67	61	8	3,500
Stark	....	....	....	....	1	4	29,998	930,229	30,245	253	177	....	.....
Summit	....	....	14	21	490	46	14,182	363,512	14,654	3,193	2,255	....	.....
Trumbull	....	....	....	....	....	2	12,865	70,335	12,775	3,057	2,476	7	6,000
Tuscarawas	....	....	....	3	50	5	19,226	647,721	18,868	18	13	....	.....
Union	18	400	13	80	1,785	116	51,151	1,720,799	44,591	20	18	....	.....
Van Wert	36	1,120	182	3,309	88,785	2,285	48,971	1,727,400	44,549	....	....	....	.....
Vinton	....	....	15	3	8	....	8,929	212,017	9,910	100	....	....	.....
Warren	10	180	7	9	107	16	44,508	1,602,924	45,131	249	270	....	18
Washington	....	....	....	1	20	4	19,563	554,409	18,994	79	82	....	.....
Wayne	8	100	....	12	477	7	36,193½	1,005,843	38,460	97	68	....	20
Williams	19	570	36	1,520	40,740	1,946	31,068	1,140,030	29,882	10	10	2	2,000
Wood	145	3,820	169	1,849	49,340	2,558	124,819	2,782,206	74,876	10	4	....	.....
Wyandot	5	....	3	5	125½	37	39,859	1,266,134	38,385	5	7	....	3
Totals	1,784½	38,493	1,884½	30,669½	833,514½	30,022	3,066,756½	100,529,653	2,856,028	28,554	26,672	278	85,649

AGRICULTURAL STATISTICS—Continued.

Counties.	Sugar Corn.		Tomatoes.		Peas.		Irish Potatoes.			Sweet Potatoes.		Onions.	
	Acres planted 1904.	Tons produced 1904.	Acres planted 1904.	Bushels produced 1904.	Acres planted 1904.	Pounds produced 1904.	Acres planted 1904.	Bushels produced 1904.	Acres (estimated) for crop of 1905.	Acres planted 1904.	Bushels produced 1904.	Acres planted 1904.	Bushels produced 1904.
Adams	9	25	......	......	......	......	382	28,591	330	5	370	......	......
Allen	61	159	6	1,555	......	......	657	63,492	757	......	......	......	......
Ashland	......	......	......	......	......	......	824½	83,163	942	......	......	⅛	20
Ashtabula	14	39	83	11,300	3	650	3,703	340,247	4,044	......	......	101	36,889
Athens	1	5	8	1,450	......	......	436	46,527	480	½	20	......	......
Auglaize	89	125	6	370	2	350	899	67,492	951	2	10	1	6
Belmont	22	53	131	25,680	2	2,665	1,099	131,524	1,068	3	375	5	440
Brown	......	......	218	34,405	42	69,500	621	34,910	532	15	820	......	......
Butler	109	205	10	2,800	......	......	973	98,665	1,349	10	460	3⅕	725
Carroll	......	......	......	......	......	......	567	64,487	499	......	......	1/10	8
Champaign	464	793	½	75	5	1,600	411	46,953	400	1½	150	5¼	2,035
Clark	35	117	6	1,015	2	50	796	85,509	960	6	677	17	1,255
Clermont	169	6,827	809	95,512	37	10,390	1,031	65,475	1,092	24	1,525	3	433
Clinton	954	2,230	75	17,135	......	500	273	20,726	375	1	206	......	......
Columbiana	7	7	6	580	4	60	2,122	233,889	2,446	......	6	2	503
Coshocton	......	......	......	......	......	......	931¾	93,361	867½	¼	20	......	......
Crawford	1	10	1	170	2	50	1,419	143,150	1,447	......	......	1	100
Cuyahoga	8	2	121	22,483	49	650	6,478	605,801	6,490	......	......	1,065	7,321
Darke	95	138	49	8,036	1	125	1,625	143,318	1,700	10	948	2	87
Defiance	......	......	11	1,670	45	52,765	914	112,841	916	1/10	15	......	2
Delaware	68	51	1	100	......	......	514	45,978	502	3	300	......	......
Erie	65	96	15	2,925	4	3,500	3,462	355,010	3,354	......	......	15	5,640
Fairfield	446	1,146	195	26,171	......	......	1,063	110,019	993	8	739	......	......
Fayette	703	1,600	17	3,185	......	......	133	13,143	95	1	50	18	175
Franklin	277	8,943	332	62,983	14	34,855	2,285	271,212	2,720	1	20	7	1,075
Fulton	52¾	149	30¾	3,920	37	2,570	1,129 7/12	159,291	1,200	3¼	35	1¾	895
Gallia	20	79	3	455	32	7,700	286	26,372	242	5	445	......	......
Geauga	......	5	......	......	......	......	2,638	234,978	3,389	......	......	11	2,050
Greene	147	563	203	40,915	1	2,000	710	73,965	901	8	18	......	......
Guernsey	4	4	2	800	103	5,875	550	56,947	377	......	......	......	......
Hamilton	910	4,977	787	143,806	4	1,140	3,585	364,966	3,761	68	7,050	55	8,707
Hancock	......	......	1	200	......	......	1,011	81,234	1,020	......	......	14	450

Hardin	319	61	7	1,100	21	60	1,260⅓	60,767	1,536 7/12	....	4	995	74,794
Harrison	8	1,052	¼	40	....	....	224	31,105	193	....	15	....	....
Henry	15	153	....	....	....	....	844	103,683	832	....	....	3	1,300
Highland	8	75	57	5,810	½	500	359	29,984	321	½	25	....	....
Hocking	8	....	49	8,060	....	30	649	61,362	662	3	239	....	46
Holmes	....	....	....	....	....	....	682	72,586	531	....	....	....	....
Huron	27	58	21	3,740	2	330	1,416	125,736	1,344	....	....	8	1,390
Jackson	4	5	1	157	6	4,000	295	21,035	189	....	202	....	30
Jefferson	13	25	13	2,925	1	175	672	75,811	683	1	50	2	300
Knox	....	....	....	....	....	....	448	43,111	436	....	....	....	....
Lake	57	62	17	1,400	....	....	1,796	181,996	1,823	....	....	641	267,292
Lawrence	46	121	26	3,387	2	6,000	423	38,705	281	109	12,386	8	856
Licking	18	67	10	2,650	5	4,700	1,359	152,471	1,566	2	196	13	7,120
Logan	158	400	¼	625	¼	500	538½	47,748	694½	1⅝	242	30⅝	7,375
Lorain	13	15	21	4,200	10	14,485	2,537	222,569	2,941	3	205	12½	3,320
Lucas	76	3,550	381	74,865	26	67,050	3,688	450,230	3,789	1	81	288	3,980
Madison	3	9	3	200	5	2,900	273	28,788	223	....	....	2	47
Mahoning	9	30	30¾	5,979	1½	600	2,511	247,878	2,613	....	....	2¾	312
Marion	45	85	6	970	....	....	988	76,563	1,021	....	....	....	....
Medina	....	....	....	....	....	....	2,991	309,560	3,376	4	160	6	2,275
Meigs	14	49	40	4,520	94	1,104	745	65,263	666	2	325	2	220
Mercer....	21	22	110	9,152	82	106,460	851	64,505	838	....	....	....	....
Miami	268	1,710	9	2,090	7	4,270	1,131	120,976	1,297	7	480	4	375
Monroe	4	7	1	300	....	....	1,386	150,200	1,355	....	....	....	....
Montgomery	238	610	66	11,560	14	15,580	1,174	126,412	1,414	10	1,609	12	1,173
Morgan	....	....	1	300	....	....	529	51,403	457	2	122	....	....
Morrow	40	88	....	....	....	....	869	96,175	868	....	....	....	125
Muskingum	52	145	46	6,745	11	23,030	1,046	116,845	920	16	3,065	6	700
Noble	1	1	1	300	....	....	693	72,237	635	....	....	....	....
Ottawa	1	11	122	21,725	....	....	921	63,948	857	....	....	....	....
Paulding	....	....	37	3,960	....	....	705	55,952	577	....	12	....	....
Perry	6	156	20	960	....	....	796	68,585	627	7	605	7	512
Pickaway	6,600	17,883	144	19,295	42	32,100	345	32,243	342	....	....	....	30
Pike'	½	2	8½	1,275	....	....	600	57,935	653	½	50	2⅛	230
Portage	31	103	15	1.593	....	....	7,852	765,851	8,085	7	....	27	12,345
Preble	121	164	268	38,601	....	....	489	51,950	464	6	942	....	144
Putnam	24	70	38	4,270	....	....	839	87,891	969	....	....	22	8,357
Richland	....	....	2	50	1	685	1,698	186,016	1,809	1	100	3	200
Ross	949½	2,687½	53	9,092	227¾	627,850	761¼	87,431	719¾	....	....	133	25,851
Sandusky	51	727	1¼	300	4	60	3,310	219,977	2,866	....	....	4	1,711
Scioto	17	76	23	1,660	4	175	1,278	119,130	1,155	26	1,680	4	520
Seneca	5	....	....	....	....	....	4,286	196,754	1,871	....	....	48	20,100
Shelby ..., ...	16	1,020	1¼	290	....	....	656	65,982	673	½	105	....	53
Stark	5	16	54	10,320	3	1,870	3,695	407,912	4,434	1	23	10	2,306
Summit	20	98	15	3,796	3	16,740	3,114	338,880	3,618	1	150	10½	3,535
Trumbull	4	2,000	18	1,505	½	50	3,598	326,023	3,636	¼	25	21	6,227
Tuscarawas	....	....	42½	8,700	2½	5,210	1,590	175,772	1,651¾	1⅛	71	12¼	1,621
Union	3	1	1	100	....	....	325	29,040	283	....	....	1	22
Van Wert	300	544	69	7,860	....	....	619	55,778	526	....	....	....	....
Vinton	3	3	4	1,007	....	....	247	18,885	218	2	300	....	....
Warren	3,591	8,471	3	300	....	....	859	32,547	1,079	5	125	....	....
Washington	61	92	751	40,918	5	3,370	1,856	202,615	1,967	63	9,055	2	450
Wayne	....	....	5	705	6	575	5,757¼	500,178	6,586¾	2½	187	303⅝	144,412
Williams	2	5	2	250	86	94,140	792	102,841	754	....	....	5	1,663
Wood	60	194	53	6,970	9	620	1,158	135,547	1,762	2	444	7	3,950
Wyandot	3	....	....	30	....	91	772¼	63,472	764¼	....	4	63	14,670
Totals...........	18,069¾	71,071½	5,794½	846,303	1,071	1,232,305	124,826	11,998,075	128,651⅓	463 1/10	47,543	3,668¼	690,755

AGRICULTURAL STATISTICS—Continued.

Counties.	Meadow.		Clover.				Flax.			Tobacco.		Milk.
	Acres in grass (other than clover) 1904.	Tons of hay produced 1904.	Acres grown 1904.	Tons of hay produced 1904.	Bushels of seed produced 1904.	Acres plowed under for manure 1904.	Acres sown 1904.	Bushels of seed 1904.	Pounds of fibre 1904.	Acres planted 1904.	Pounds produced 1904.	Gallons sold for family use 1904.
Adams	16,615	12,855	4,739	3,241	2,259	339	....	....	....	2,960	2,604,520	16,508
Allen	19,249	26,122	9,386	12,292	2,175	1,353	....	....	....	....	....	187,085
Ashland	30,767	37,957	10,769	12,102	2,339	133	275	2,927	142,700	....	....	58,437
Ashtabula	56,260	71,758	778	1,095	....	33	1	....	....	....	....	7,118,626
Athens	19,502	21,493	800	1,241	28	36	....	....	....	....	....	180.085
Auglaize	13,740	17,703	13,365	16,756	6,943	2,271	....	....	....	....	....	123.590
Belmont	42,119	44,307	1,124	1,368	165	17	....	....	....	739	875,315	659,171
Brown	20,463	16,559	3,272	1,997	837	809	....	....	6	4,685	4,619,448	98.145
Butler	14,893	16,509	19,464	14,389	4,613	7,943	20	....	....	1,226	1,058,770	914,609
Carroll..................	34,988	33,099	1,238	1,208	256	9	5	50	....	....	....	47,236
Champaign	11,688	14,363	13,600	14,246	6,682	1,838	....	....	....	45	35,290	431.833
Clark	18,006	24,060	8,248	9,449	5,498	1,128	....	....	....	189	199,000	817.008
Clermont	25,086	19,217	4,106	3,443	451	617	....	....	....	2,064	1,998,301	506.744
Clinton	17,245	20,561	5,793	5,770	3,681	3,669	....	....	....	12	9,900	113.925
Columbiana	48,716	57,906	3,568	5,101	190	2	....	....	....	....	....	4,058.680
Coshocton	40,078	46,788	3,328	3,823	1,495	22	....	....	....	....	....	80,150
Crawford	27,286	37,322	10,947	14.340	3,843	32	1	12	....	....	....	197.895
Cuyahoga	25,052	34,051	709	1,088	....	25	....	....	....	....	....	3,463.071
Darke	18,490	20,326	35,386	31,721	11,834	14,374	6	78	....	10,680	9,301,531	219.942
Defiance	23.991	27,827	5,800	4,893	4,348	577	....	....	....	....	....	106.295
Delaware	38,835	47,787	6,755	8,336	1,811	88	....	....	....	....	....	196.870
Erie	12,394	15,004	2,769	3,638	479	488	....	....	....	....	....	368,783
Fairfield	36,810	54,053	11,270	12,848	7,204	206	....	....	....	....	....	63,027
Fayette	15,175	13,955	9,584	8,037	5,032	2,392	....	....	....	....	....	63.750
Franklin	35,360	43.692	8,200	8,868	4,508	2,527	33	38	....	....	....	2,928.327
Fulton	23,964	27,964	1,419	1,245	744	50	81	....	751	1	700	414,225
Gallia	16,539	15,415	1,277	1,053	40	269	....	....	....	580	366,520	45.455
Geauga	26,724	37,678	414	722	5	33	....	....	....	....	....	598.245
Greene	15,930	19,937	12,696	10,732	7,026	1,838	....	....	....	520	343,495	299,450
Guernsey	40,013	42.946	399	497	32	....	....	....	....	126	138.795	191.703
Hamilton	11,415	12.585	4,230	5,610	1,344	996	....	....	....	140	132,337	1,752.493
Hancock	29,824	40,158	14,148	17,881	5,248	374	14	24	....	....	....	97,540

Hardin	18,468½	26,175	9,637½	12,259	4,293½	578	42	432	2,000	....	....	123,970
Harrison	35,943	39,988	416	549	71	6	....	....	....	....	....	97,865
Henry	17,590	21,264	5,313	4,945	3,588	339	....	....	....	....	....	11,565
Highland	26,866	26,367	10,102	6,795	9,240	250	....	....	....	6	4,000	101,460
Hocking	18,025	15,622	1,699	2,105	580	65	....	....	....	....	....	31,140
Holmes	21,806	26,807	6,392	8,663	2.927	....	....	....	....	....	....	103,295
Huron	36,687	47,866	12,362	14,947	2,537	179	402	6,723	161,800	....	....	322,952
Jackson	18,701	13,702	140	104	....	16	....	....	....	....	....	35,660
Jefferson	31,761	31,953	1,687	2,165	359	3	....	....	....	....	....	375,955
Knox	36,081	45,515	6,250	6,916	1,911	....	....	....	....	....	....	113,507
Lake	14,017	18,105	329	291	59	33	....	....	....	4	4,000	1,231,006
Lawrence	6,065	5,435	1,040	767	37	153	....	....	....	60	48,368	128.845
Licking	60,715	67,790	8,447	9,837	4,083	202	....	....	....	....	....	1.186,529
Logan	16,626	20,902	13,622	15,474	5,894	1,148	....	....	....	....	....	235,317
Lorain	58,135	57,623	4,415	5,858	89	52	37	300	12,000	....	....	2,147.950
Lucas	15,392	17,744	1,089	946	589	164	2	500	3	....	32	1,212,220
Madison	13,945	15,774	12,987	11,880	7,843	4,836	....	....	....	....	....	104.123
Mahoning	35,779	50,582	2,007	3,037	78	32	....	....	....	....	....	1,126,466
Marion	19,008	24,731	11,375	14,062	4,640	596	....	....	....	....	2,500	105,405
Medina	29,422	40,161	8,433	11,856	883	48	12	131	....	77	145,620	554,235
Meigs	19,618	18,312	1,225	1,035	138	219	....	....	....	....	....	38,340
Mercer	16,600	21,541	17,776	23.533	9,093	393	....	....	....	12	6,164	51,455
Miami	9,203	11,416	19,035	16,296	4,752	6,277	....	....	1,200	4,404	3,894,770	394.785
Monroe	30,143	30,698	402	487	139	4	4	25	....	709	761,335	51.532
Montgomery	16,420	21,729	14,482	14,984	6,234	5,146	24	200	....	16,051	12,405,980	1,467,921
Morgan	29,676	29,706	1,474	2,064	227	37	....	....	....	....	....	4,510
Morrow	30,968	41,284	7,969	11,247	1,970	134	....	....	....	....	....	58,040
Muskingum	48,189	50,750	2,010	2,552	154	55	....	....	....	2	1,400	345,047
Noble	32,693	36,160	714	881	55	....	....	....	....	1,010	1,232,938	3,440
Ottawa	15,080	19,664	3,433	4,296	748	150	....	....	....	....	....	27,150
Paulding	20,420	26,291	5,964	5,548	2,226	811	....	....	....	4	3,000	8,340
Perry	27,042	29,351	3,165	3,850	2,026	31	....	....	....	....	....	69,642
Pickaway	15,357	14,852	13,646	9,791	8,590	4,815	....	....	....	....	....	51,031
Pike	9,790	8,190	3,819	2,507	2,433	1,629	78	....	....	12¼	7,800	8,610
Portage	32,500	43,434	2,952	3,765	414	123	....	....	....	....	....	1,319,721
Preble	7,309	8,188	25,961	18,940	5,961	11,634	....	....	....	6,631	5,095,539	237,155
Putnam	22,143	29,999	7,802	9,007	3,644	3,221	4	25	....	....	....	6.320
Richland	28,171	36,966	13,695	18,172	2,496	142	30	285	10,000	....	....	352,158
Ross	14,386	14,757	8,504	6,728	5,828½	4,599	....	....	....	17	20,425	63,540
Sandusky	23,292	25,874	7,074	4,046	1,611	705	....	....	....	....	....	41.925
Scioto	11,761	12,009	1,831	1,393	252	577	....	....	....	854	257,400	84,592
Seneca	33,392	40,812	17,013	20,729	8,444	1,290	....	11	....	....	....	195,950
Shelby	12,130	14,731	17,191	18,838	10,635	3,138	....	....	....	48½	32,990	216.870
Stark	48,185	64,724	6,744	8,971	1,017	137	1	11	....	1	500	1,625.110
Summit	22,914	34,109	3,441	4,785	240	84	....	....	....	....	....	2,793.215
Trumbull	56,954	73,132	441	520	17	25	....	....	....	....	....	1,157,732
Tuscarawas	46,064	48,864	1,975½	2,405	805	24	2	12	....	....	....	445.495
Union	22,218	28,938	11,521	15,548	3,442	488	....	....	....	....	27	575.816
Van Wert	27,076	37,455	6,395	8,627	2,701	1,010	....	....	....	....	....	99.725
Vinton	15,650	12,179	385	347	79	72	....	....	....	1	30	3.085
Warren	21,379	21,216	9,743	7,247	1,706	5,875	20	....	....	4,406	4,100.536	357,393
Washington	34,468	31,696	681	852	118	22	1	10	....	7	4.800	221,297
Wayne	43,766½	57,629	14,440	19,400	2,776½	815	16½	147	13,000	167¾	229,980	392.247
Williams	30,527	37,944	4,042	3,659	2,489	68	....	....	....	....	....	142.962
Wood	32,802	34,775	6,290	5,999	2,172	1,150	6	....	....	....	....	479.920
Wyandot	23,819	30,154	12,689	15,462	5,070½	1,026	....	....	....	....	....	192.512
Totals	2,290,354½	2,685,592	623,248	666,997	241,514	109,264	1,117	11,941	343,460	58,451½	49,944,056	49,352,951

AGRICULTURAL STATISTICS—Continued.

Counties.	Butter.		Cheese.		Eggs.		Sorghum.			Maple Products.		
	Pounds made in home dairies 1904.	Pounds made in factories and creameries 1904.	Pounds made in home dairies 1904.	Pounds made in factories and creameries 1904.	Number dozen produced 1904.	Number dozen shipped beyond state 1904.	Acres planted 1904.	Pounds of sugar 1904.	Gallons of syrup 1904.	Number trees from which sugar or syrup was made 1905.	Pounds of sugar 1905.	Gallons of syrup 1905.
Adams	379,505	....	....	....	673,212	115	52	40	1,817	3,405	180	1,114
Allen	467,630	....	4,800	2,150	659,570	....	24	....	503	8,776	372	2,599
Ashland	457,679	11,210	....	151,120	683,049	....	1¾	....	119	75,722	5,481	11,512
Ashtabula	544,705	416,848	11,300	2,035,458	760,865	370	....	....	....	260,500	14,618	30,159
Athens	322,372	9,700	650	....	570,132	....	11	90	235	1,097	189	404
Auglaize	490,872	150,000	5,650	....	953,007	....	51	....	2,637	10,956	190	4,916
Belmont	726,330	23,544	7,530	....	721,387	1,205	24	....	789	2,130	25	836
Brown	604,137	....	....	....	1,028,498	....	15	....	468	1,000	160	366
Butler	670,595	1,100	12,590	....	709,545	150	15	....	92	1,853	25	717
Carroll	549,523	155,038	....	100	557,673	1,325	1¼	....	69	305	....	97
Champaign	427,953	217,150	6,500	52,000	586,381	520	9	....	260	13,579	1,980	5,063
Clark	520,457	....	33,474	200	475,341	75,000	19	20	910	200	90	32
Clermont	549,250	8,665	120,106	....	656,863	....	42	....	1,220	811	....	430
Clinton	313,762	96,810	....	....	601,710	....	17	....	296	24,827	90	11,228
Columbiana	703,799	341,306	33,700	159,036	964,624	19,395	1	....	50	31,720	216	3,432
Coshocton	555,217	7,400	25	80,630	643,032	....	4⅝	....	288	1,200	16	387
Crawford	604,112	39,000	....	....	832,264	....	9	....	103	18,030	156	4,407
Cuyahoga	497,961	58,300	....	238,000	551,730	....	10	1,200	50	63,195	3,262	9,967
Darke	1,323,635	237,386	3,200	7,200	1,781,863	833,000	117	65	3,053	7,978	95	3,110
Defiance	474,494	46,575	75	....	909,190	10	26	....	2,204	11,041	....	2,773
Delaware	398,540	323,090	300	....	766,978	12,370	4	40	....	24,974	46	7,406
Erie	298,175	....	800	....	273,786	....	....	....	....	8,225	258	1,397
Fairfield	845,599	4,480	....	500	915,830	....	8	....	666	6,212	306	3,043
Fayette	180,635	1,410	....	....	469,253	....	½	....	85	800	....	434
Franklin	756,433	111,330	603	....	819,878	195	6	....	15	1,508	125	412
Fulton	858,701	201,800	399,630	1,559,826	1,102,968	1,232,200	11	....	351	4,608	14	882
Gallia	448,854	....	510	....	620,448	....	176	....	8,802	410	25	102
Geauga	159,408	325,186	....	2,712,166	506,377	18	....	....	....	594,992	12,616	77,814
Greene	591,493	700	3,040	30,783	716,781	....	9	....	114	20,575	1,125	8,873
Guernsey	458,090	25,000	....	....	455,636	1,800	29	200	1,825	337	10	214
Hamilton	457,147	2,820	....	....	308,684	....	3	....	90	422	50	227
Hancock	825,502	45,050	1,670	....	833,146	....	3	....	116	21,307	222	6,351

Hardin	405,390	6,450	100	34,400	661,632	...	1	...	41	5,206	305	1,320
Harrison	409,900	215,824	...	...	400,904	9,070	½	...	186	1,344	90	558
Henry	610,156	5,625	300	...	1,137,007	600	17	...	1,135	945	83	220
Highland	468,879	17,986	...	...	879,599	200	17	25	474	6,270	964	1,921
Hocking	308,745	...	...	400	358,526	...	5	38	924	443	20	217
Holmes	525,433	8,468	28,650	424,333	862,581	...	431	14	265	3,723	...	779
Huron	589,033	48,625	13,000	...	731,767	...	...	...	...	56,076	768	10,918
Jackson	225,799	...	...	...	282,675	...	18	...	1,047	...	...	...
Jefferson	464,739	35,155	...	...	398,452	...	...	...	25	1,814	...	654
Knox	612,475	...	...	...	881,657	...	...	...	...	26,524	1,120	5,265
Lake	276,346	52,622	600	...	223,759	...	...	...	...	36,190	3,702	4,768
Lawrence	286,637	...	...	...	241,143	7,060	364	...	30,404	250	130	129
Licking	810,118	555,757	640	...	1,029,314	...	4	...	586	47,411	190	8,075
Logan	429,531	253,905	900	155,950	827,147	...	3½	...	114	83,475	43,637	32,023
Lorain	474,614	238,579	10,000	891,236	1,018,257	28,155	2	...	...	80,169	6,326	11,849
Lucas	560,952	4,200	1,000	...	418,608	900	24	50	...	5	...	4
Madison	237,985	200	...	...	526,705	39,089	...	...	...	...	...	...
Mahoning	661,267	340,003	82,250	76,250	915,476	150	...	...	12	100,300	857	12,333
Marion	436,260	...	...	...	730,972	200	3⅞	...	87	1,605	...	521
Medina	475,191	442,724	39,225	201,665	583,181	60	...	175	10	179,239	12,487	29,189
Meigs	367,324	...	6,895	...	594,243	900	18	250	499	282	...	118
Mercer	518,268	...	1,550	...	1,130,250	...	125	...	6,354	519	...	151
Miami	646,347	300	17,435	...	659,410	3,363	13	...	768	5,069	5	2,300
Monroe	530,255	800	403,470	52,400	1,205,090	38,904	45	...	2,262	...	...	...
Montgomery	1,011,785	69,510	11,750	...	849,695	...	33	...	3,414	4,635	...	1,837
Morgan	474,707	...	...	...	866,552	1,400	10	...	344	413	75	167
Morrow	620,460	123,500	...	...	756,169	...	...	...	...	77,581	...	16,835
Muskingum	702,496	64,019	...	...	792,105	2,272	16	...	288	856	...	311
Noble	480,320	...	...	...	634,015	...	33	...	1,950	207	...	262
Ottawa	313,958	1,175	...	...	392,943	100	1	...	50	200	...	40
Paulding	453,420	...	...	...	761,899	...	5	...	240	1,058	...	402
Perry	418,431	36,000	...	...	580,128	180	17	...	1,036	8,792	40	4,036
Pickaway	345,131	1,500	...	...	607,907	...	5	...	214	1,094	...	707
Pike	201,501	...	550	...	433,587	...	31	...	2,093	709	224	325
Portage	599,062	345,904	1,900	988,321	640,210	1,500	...	...	3	396,253	1,520	51,049
Preble	695,132	7,588	1,300	...	785,202	4,026	40	300	1,826	8,809	...	3,142
Putnam	620,407	19,815	11,355	...	1,188,505	39,378	12	5	936	1,705	173	356
Richland	710,321	32,570	12,050	...	631,309	...	½	170	362	58,936	2,808	10,070
Ross	277,805	300	10,310	...	377,721	...	5¾	17½	168	3,462	375	1,408
Sandusky	696,832	22,050	...	...	532,042	...	8	...	231	2,821	...	868
Scioto	293,995	...	...	...	258,810	700	66..	...	4,920	25	...	10
Seneca	777,663	...	...	10,000	892,967	...	1	...	20	23,283	170	5,100
Shelby	513,785	69,500	410	850	868,233	...	54	...	4,422	2,892	33	976
Stark	896,543	75,554	168,060	310,973	914,250	25	2	...	118	24,314	...	3,865
Summit	419,323	206,895	1,900	234,895	480,678	...	...	...	...	45,077	1,530	5,970
Trumbull	697,196	269,596	575	1,423,740	813,486	2,025	7	...	...	246,847	5,246	41,251
Tuscarawas	494,567	35,101	26,023	1,024,498	509,266	15,455	9 7/12	51	235	1,058	...	375
Union	390,642	8,550	3,500	400	971,591	...	2	100	131	18,530	4,145	5,032
Van Wert	601,971	...	...	...	1,144,084	...	4	...	120	140	1,447	...
Vinton	200,062	...	...	...	244,582	...	14	...	695	296	...	226
Warren	398,374	129,778	...	1,250	563,179	...	21	...	137	5,072	...	2,135
Washington	667,050	63,650	640	...	931,062	1,190	48	...	898	40	15	21
Wayne	1,149,737	74,742	230,547	239,997	1,169,583	1,800	1	37	73	29,530	235	4,668
Williams	619,321	158,370	...	47,005	1,002,465	100	9	...	801	28,123	65	5,355
Wood	871,330	1,400	50,930	...	1,575,571	...	3	20	224	1,605	25	555
Wyandot	386,318	136,565	...	2,160	799,084	625	1½	116	...	9,080	95	2,513
Totals	46,793,854	7,071,753	1,783,968	13,149,892	63,776,936	2,377,100	2,251⅙	3,023½	98,369	1,862,997	130,847	493,883

AGRICULTURAL STATISTICS—Concluded.

Counties.	Bees.	Honey.	Commercial Fertilizers.			Grapes and Wine.				Orchards.			
										Apples.		Peaches.	
	Number of hives 1904.	Pounds of honey 1904.	Pounds used during 1904.	Cost of fertilizers used during 1904.	Estimated pounds to be used during 1905.	Acres (new) vineyard planted 1904.	Whole number of acres in vineyard 1904.	Pounds of grapes gathered in 1904.	Gallons of wine pressed in 1904.	Acres occupied 1904.	Bushels produced 1904.	Acres occupied 1904.	Bushels produced 1904.
Adams	1,060	10,839	3,508,900	$35,021	2,851,950	....	....	....	....	2,085	55,119	160	7,648
Allen	503	5,265	289,100	5,000	129,850	1	12	23,700	1,032	2,350	37,684	6	691
Ashland	141	1,466	2,977,070	28,891	1,990,980	....	....	130	....	2,535	100,480	73	7,541
Ashtabula	258	14,618	5,580.978	55,737	5,265,257	3	213	443,300	45	3,781	545,988	133	2,409
Athens	429	3,872	1,684,378	13,902	785,100	1	1	1,200	38	3,476	62,768	3,133	73,603
Auglaize	636	8,755	714,300	5,775	399,500	2	2	2,400	325	1,935	31,420	3	87
Belmont	340	2,556	1,499,120	14,934	813,510	14	73	185,150	4,766	4,271	195,561	276	15,083
Brown	218	3,008	2,707,050	26,528	1,485,720	61	....	1,700	208	2,219	20,868	57	2,160
Butler	244	3,220	935,300	8,530	555,400	6	18¼	12,900	1,043	588	6,041	89	2,182
Carroll	60	590	1,762,700	18,296	1,204,360	....	....	200	....	3,797	199,728	102¼	5,826
Champaign	388	4,246	1,655,960	14,296	589,800	....	5	3,300	200	1,230	26,556	61	2,845
Clark	302	4,848	1,766,500	14,941	797,220	....	7	4,370	70	1.485	21,580	52	1,388
Clermont	330	6,660	2,082,488	14,136	1,044,300	38	73	112,850	3,776	3,214	19,676	1,051	29,753
Clinton	249	2,340	3,005.685	29,376	1,722,705	....	....	....	....	1,373	6,092	42	1,186
Columbiana	248	1,987	4,131,796	50,815	3,163,816	¼	....	2,100	83	6,910	378.603	211	11,614
Coshocton	112	1,321	1,811,775	16,478	1,040,130	....	6¼	9,350	388	4.609¼	350,242	1,415¼	106.481
Crawford	278	5,607	2,404,250	21,894	1,658,650	....	18	24,400	1,147	3,202	206,274	19	2,073
Cuyahoga	181	2,730	4,874,950	53,531	3,453,250	49	2,606	3,466,330	12,552	3,698	224,524	81	1.580
Darke	956	13,238	1,404,464	11.758	803.200	7	....	16,005	309	3,664	55.506	19	1,285
Defiance	649	19,961	213,360	2,348	153,100	2	13	65,350	695	2.368	93,372	122	2,690
Delaware	86	1.695	1,343,130	10,935	827,350	....	....	....	....	2,432	83.690	12	670
Erie	115	9,128	1,870,990	18,179	1,283,309	19	1,210	1,174,123	71,400	1.651	103,728	891	14,206
Fairfield	245	943	4,837,850	47.248	3,316,500	7	13	12,300	60	3.147	53,319	123	5,664
Fayette	231	2,985	2,647,750	21,214	1,331,250	1¼	¼	2.000	....	550	3,777	17	204
Franklin	282	3.926	2,113,340	11,887	461,530	3	2	6,500	90	2,935	63.873	17	780
Fulton	146	2,020	142,600	1,646	103,200	....	1	1,060	165	3,232½	128.638	116¾	3,108
Gallia	457	6,160	1,342,106	12,613	1,140.365	....	2	4.600	50	5.342	78,071	713	8,587
Geauga	39	1,330	3,058,900	30.662	3,079,540	25½	3	26,900	....	2,455	218,520	11	449
Greene	345	2,657	2,013,250	19.550	1,115,500	1	1	8,800	....	1,127	10.496	96	3,166
Guernsey	106	994	1,391,710	13,522	883.815	1	3	1,330	....	4,050	158,766	654	35.435
Hamilton	276	5,657	206,375	4,512	152.650	29	27	69.705	2,902	878	9.781	375	15,906
Hancock	544	13,810	648,675	6,631	361,000	....	8	11,400	556	4,183	65,888	24	1,063

Hardin	569	11,200	648,800	15,373	542,272	....	½	3,000	50	1,942	29,025	8	359
Harrison	226	695	701,440	11,342	268,920	....	....	8,000	4	3,204	142,638	357	23,388
Henry	168	2,857	154,810	1,607	99,800	....	12	12,100	1,295	2,661	71,293	89	932
Highland	406	5,734	5,537,290	57,388	3,562,350	....	....	12,650	290	2,977	10,034	138	7,741
Hocking	274	1,221	2,013,610	18,425	1,510,690	....	43	7,435	125	2,217	38,279	445	10,132
Holmes	71	1,177	2,106,470	19,833	1,477,990	....	....	4,100	235	3,061	158,372	278	11,633
Huron	247	10,890	4,934,440	48,021	3,991,230	....	....	....	....	3,000	161,242	75	705
Jackson	293	3,380	1,356,200	11,347	852,700	....	....	600	....	2,299	39,244	306	12,979
Jefferson	162	748	1,339,650	12,410	967,600	4	....	1,500	....	3,326	118,558	110	6,871
Knox	175	3,100	3,105,420	24,130	2,490,000	....	....	....	....	2,817	51,074	111	694
Lake	98	1,131	2,073,858	17,339	1,187,100	40	1,525	2,953,680	2,010	1,284	150,380	332	5,140
Lawrence	729	9,990	175,020	2,029	88,586	....	....	602	3,000	4,244	58,307	372	8,913
Licking	386	1,843	3,605,280	35,161	2,103,600	1	4	21,050	3	4,350	155,369	507	16,935
Logan	561	5,963	1,141,470	8,028	524,600	....	....	....	7	1,624	29,921	21¼	1,960
Lorain	332	7,808	3,869,375	39,652	3,184,850	....	986	1,865,508	12,718	3,136	205,054	154	3,774
Lucas	110	1,895	354,060	3,186	351,100	266	716	626,950	12,440	2,285	96,348	557	8,571
Madison	385	5,588	290,600	2,506	64,100	1	51	2,720	160	858	18,970	11	619
Mahoning	176	2,349	4,140,875	56,525	3,783,646	....	....	500	45	6,494	343,940	122	5,745
Marion	440	4,025	610,900	5,535	409,800	....	2	5,200	40	1,572	46,649	5	239
Medina	131	1,850	7,252,300	61,846	5,434,900	....	1	8,200	....	2,618	166,915	44	1,227
Meigs	621	3,475	1,717,550	16,037	1,267,220	3	1	600	....	3,290	61,836	561	18,225
Mercer	570	8,850	576,550	4,663	227,150	3	11	9,450	655	2,531	31,361	20	471
Miami	281	7,254	1,953,129	16,451	897,080	1	1	10,900	290	1,152	25,444	55	1,593
Monroe	336	2,808	2,156,660	21,006	1,627,870	....	1	1,650	200	4,560	174,253	31	1,316
Montgomery	1,004	7,080	3,400,750	31,993	2,999,315	16	12	26,200	465	3,216	40,499	106	3,337
Morgan	241	2,151	2,220,622	20,390	1,378,050	....	....	....	30	3,450	76,790	354	13,865
Morrow	157	1,580	3,969,866	25,240	2,469,180	....	....	....	....	2,563	95,657	42	3,456
Muskingum	460	3,626	3,830,040	29,134	3,270,250	1½	2	6,800	96	4,782	200,004	985	55,112
Noble	226	1,523	1,144,560	11,138	583,200	....	1	200	110	3,058	103,880	194	10,550
Ottawa	138	3,200	8,200	99	4,500	8	2,122	4,166,830	104,715	1,996	41,776	6,470	209,241
Paulding	454	5,758	....	....	....	....	6	11,900	....	1,767	57,255	8	81
Perry	313	3,046	3,740,720	37,080	3,073,924	....	3	700	....	2,355	73,248	204	8,924
Pickaway	180	2,035	3,380,040	28,454	1,064,300	6	....	....	....	1,147	17,445	2	31
Pike	402	3,905	2,497,459	21,668	1,304,730	5	1	300	....	2,252	55,179	298	10,843
Portage	212	4,058	5,589,405	55,492	4,375,717	....	1	3,550	45	3,905	322,459	34	734
Preble	710	8,943	5,480,775	47,384	4,775,040	....	2	2,960	679	1,697	33,050	43	1,649
Putnam	467	9,425	25,400	260	7,000	4	15	17,307	4,847	2,609	86,654	11	560
Richland	325	2,630	3,562,310	33,664	2,192,240	1	10	7,400	....	4,319	175,456	203	8,462
Ross	233	3,276	2,733,550	24,825	1,535,300	3	8	8,000	60	2,073½	22,819	893⅘	31,614
Sandusky	282	7,175	1,081,300	7,462	471,390	2¾	7¼	19,000	1,000	2,395	84,023	287	3,854
Scioto	684	6,370	2,951,490	26,990	2,000,370	....	6	1,800	....	2,006	59,100	303	10,930
Seneca	430	8,485	4,912,000	40,597	3,421,400	5	3	7,560	1,305	3,477	113,262	69	1,183
Shelby	445	4,730	1,407,913	11,345	592,990	....	½	1,550	393	1,642	21,612	16¼	648
Stark	280	2,542	5,775,427	60,539	4,408,823	3	3	6,790	405	5,802	468,503	211	18,183
Summit	282	11,270	3,769,560	39,117	3,027,375	....	....	15,900	20	3,106	275,698	41	2,407
Trumbull	468	9,593	3,953,256	49,491	3,241,060	....	7	24,000	....	4,437	376,886	336	4,214
Tuscarawas	356	2,273	1,675,091	16,273	1,056,310	2	18	32,810	1,275	5,778¾	339,492	331	31,968
Union	628	9,880	740,500	6,232	305,000	12	....	550	135	2,549	37,537	23	937
Van Wert	511	12,665	1,400	17	1,400	....	....	....	....	2,807	67,942	20	870
Vinton	198	2,224	1,020,000	9,257	552,400	....	....	....	....	2,088	36,241	641	20,570
Warren	176	1,301	2,026,460	17,344	826,900	....	1	920	10	2,165	7,433	309	8,640
Washington	1,298	5,045	3,653,652	34,389	3,073,380	3	1,052	3,720	180	8,025	113,116	335	8,983
Wayne	457	6,131	8,154,470	79,869	7,719,025	3	4	47,305	706	5,189½	311,765	132¼	6,861
Williams	345	9,311	197,000	2,585	138,400	....	13	18,545	100	4,165	155,993	24	2,201
Wood	250	7,270	228,200	2,825	146,495	45¼	39¼	159,200	3,005	3,316	52,552	142	2,036
Wyandot	314	6,734	1,207,725	11,013	541,550	3	2¼	5,640	317	2,474½	60,242	16½	1,443
Totals	31,127	449,498	202,709,698	$1,932,792	141,435,975	713½	11,011½	15,846,580	255,365	260,887	9,984,703	27,949⅓	1,001,912

AGRICULTURAL STATISTICS—Continued.

Counties.	Orchards.								Lands Owned in 1904.				
	Pears.		Cherries.		Plums.		Other Small Fruits.						
	Acres occupied 1904.	Bushels produced 1904.	Acres occupied 1904.	Bushels produced 1904.	Acres occupied 1904.	Bushels produced 1904.	Acres occupied 1904.	Bushels produced 1904.	Number of acres cultivated.	Number of acres pasture.	Number of acres woodland.	Number of acres lying waste.	Total number of acres owned.
Adams	7	305	3	284	9	843	5	73	82,616	95,189	64,917	21,762	264,484
Allen	3	814	3	515	9	2,156	3	173	86,332	45,051	24,544	4,391	160,318
Ashland	31	1,808	4	489	5	746	7	530	110,662	52,309	32,195	6,693	201,859
Ashtabula	35	1,155	4	31	24	492	3	1,239	94,970	136,393	40,655	7,619	279,637
Athens	45	1,575	8	158	16	1,133	....	180	30,828	110,750	20,092	10,658	172,328
Auglaize	5	881	5	244	9	787	2	734	129,111	38,025	31,542	1,676	200,354
Belmont	90	3,682	41	2,164	130	16,971	15	7,635	72,916	129,264	30,547	9,860	242,587
Brown	3	208	2	95	8	169	4	75	91,758	124,580	24,593	10,798	251,729
Butler	19	625	10¼	322	8	700	14	1,125	149,347	41,386	20,814	13,068	224,615
Carroll	1	110	2	82	24	803	43	2,222	55,423	94,462	22,616	5,565	178,066
Champaign	13	1,796	7	227	6	1,132	27	880	133,471	59,371	19,552	2,146	214,540
Clark	45	1,553	44	1,245	81	4,639	98	4,592	115,217	43,854	13,871	3,028	175,970
Clermont	515	9,828	44	778	84	1,037	295	7,675	90,066	83,348	18,763	15,607	207,784
Clinton	20	491	3	197	5	2,741	12	410	110,849	64,247	19,702	3,677	198,475
Columbiana	13	2,205	27	1,538	41	7,612	180	11,470	106,629	104,352	37,282	9,270	257,533
Coshocton	51¼	1,286	3	143	9½	695	26⅛	1,328	68,816½	160,888½	44,051	6,231	279,987
Crawford	14	1,331	10	226	32	3,886	14	894	128,320	43,916	36,933	1,185	210,354
Cuyahoga	119	6,796	39	486	58	1,006	396	11,591	83,790	49,598	11,821	8,602	153,811
Darke	8	2,510	13	858	25	2,765	32	1,658	234,453	59,201	41,887	8,173	343,714
Defiance	5	629	51	387	16	546	39	1,478	122,996	28,257	39,546	3,217	194,016
Delaware	....	....	....	....	....	....	....	....	99,455	87,972	22,795	1,647	211,869
Erie	114	4,727	24	198	48	1,599	195	6,688	64,037	19,854	8,881	9,337	102,109
Fairfield	59	1,653	16	1,201	30	1,810	174	9,493	115,882	99,838	29,108	7,620	252,448
Fayette	12	340	30	357	18	647	7	252	86,701	84,060	10,725	2,691	184,177
Franklin	32	2,597	7	515	43	2,098	45	2,017	131,562	70,007	15,806	8,059	225,434
Fulton	14¾	1,139	3½	172	8¾	480	24½	480	117,402¼	27,701¼	24,489⅔	1,342	170,938⅓
Gallia	46	383	14	135	35	1,222	109	2,544	48,231	123,776	24,818	12,304	209,129
Geauga	41	2,253	1	7	8	194	7	437	62,592	92,479	34,466	1,735	191,272
Greene	17	617	21	137	7	947	30	2,396	125,080	43,731	21,607	7,648	198,066
Guernsey	29	1,305	9	330	45	3,292	57	2,465	63,146	147,965	30,625	4,636	246,372
Hamilton	414	21,057	17	747	119	908	741	4,860	38,159	25,721	4,510	5,969	74,359
Hancock	13	650	4	242	19	1,233	12	466	150,506	66,131	36,717	6,701	260,055

Hardin	½	403	1	16	⅛	373	6	110	95,142½	49,488	29,262¼	1,287½	175,180¼
Harrison	20	1,705	2	776	22	4,101	25	1,596	36,664	109,632	23,197	1,897	171,390
Henry	....	65	5	69	13	301	28	200	144,008	11,447½	25,146	1,508	182,109½
Highland	5	758	....	56	6	1,349	5	35	124,465	136,229	34,357	6,684	301,735
Hocking	9	299	41	2,522	21	1,350	15	517	30,105	90,598	32,095	10,600	163,398
Holmes	3	260	3	386	11	643	8	540	95,677	71,007	32,985	4,835	204,504
Huron	7	245	7	122	4	125	45	1,745	157,853	73,918	29,083	2,290	263,144
Jackson	5	246	4	12	1	159	15	625	28,469	111,604	19,371	11,724	171,168
Jefferson	11	648	....	245	15	2,262	12	1,060	58,560	99,002	30,534	5,743	193,839
Knox	....	....	....	....	....	....	32	494	104,765	117,502	34,779	1,130	258,176
Lake	241	11,022	6	147	73	1,239	38	2,110	44,124	30,456½	12,625	5,038½	92,244
Lawrence	33	765	10	43	11	487	85	1,900	34,563	50,664	25,938	37,199	148,364
Licking	30	1,206	15	315	17	2,018	42	2,548	120,972	193,423	38,027	3,792	356,214
Logan	9¾	780	1⅛	347	31	2,494	7	375	119,052	64,546	31,365	2,462	217,425
Lorain	213½	6,252	5¼	26	55½	1,239	106	5,476	110,849	81,963	25,892	4,171	222,875
Lucas	126	5,478	107	2,710	49	2,218	309	10,243	68,365	13,244	9,655	6,172	97,436
Madison	8	348	3	213	25	803	1	100	123,967	86,005	9,824	2,075	221,871
Mahoning	68	4,057	7½	237	35	3,961	110	7,179	97,556	94,795	25,796	2,810	220,957
Marion	15	98	5	150	4¼	488	49	2,365	92,970	56,168	15,628	2,038	166,804
Medina	11	722	17	209	42	541	9	423	136,766	80,981	26,823	1,860	246,430
Meigs	34	941	10	179	40	1,270	193	6,421	42,375	101,990	24,777	15,423	184,565
Mercer	13	551	2	120	5	293	7	293	147,493	38,432	40,670	3,054	229,649
Miami	25	2,802	40	2,922	65	5,405	87	3,515	130,674	20,027	15,086	4,389	170,176
Monroe	21	737	1	105	54	1,183	26	1,915	70,130	114,792	41,081	18,318	244,321
Montgomery	93	7,216	45	3,063	14	1,107	86	4,174	154,184	25,091	19,680	9,760	208,715
Morgan	9	431	19	1,611	18	1,946	3	185	53,438	126,418	27,406	7,087	214,349
Morrow	14	796	1	25	5	867	32	1,877	78,669	87,684	28,934	3,760	199,047
Muskingum	54	1,289	9	715	57	4,524	56	4,095	75,985	180,786	42,085	11,592	310,448
Noble	3	311	3	256	15	2,188	26	880	63,671	140,518	23,603	3,232	231,024
Ottawa	113	4,347	11	252	227	6,027	19	235	75,940	18,579	9,753	5,901	110,173
Paulding	103	293	....	87	40	112	1	40	114,968	23,194	23,297	3,267	164,726
Perry	38	1,198	29	1,575	13	1,515	24	1,457	51,064	100,034	21,627	14,719	187,444
Pickaway	2	83	4	58	....	246	13	1,489	149,035	80,659	17,423	8,572	255,689
Pike	16	139	6½	73	10	435	22	690	53,469	51,041	52,920	18,772	176,202
Portage	18	1,667	13½	283	11¼	1,001	14	1,353	104,529	94,879	38,893	9,393	247,694
Preble	17	1,691	9	858	23	3,244	37	1,134	157,944	47,775	28,295	8,629	242,643
Putnam	4	279	....	102	8	927	22	409	154,732	32,250	30,255	3,143	220,380
Richland	80	3,744	21	492	33	1,831	63	2,895	149,900	53,249	42,222	7,845	253,216
Ross	14	265	26	340	95	770	99¼	1,682¼	103,239⅗	84,192½	41,598¾	17,720¼	246,751¹/₁₀
Sandusky	50	825	187	2,400	44½	2,102	83½	3,882	117,777	26,097	18,607	3,912	166,393
Scioto	6	290	3	32	11	260	120	3,770	67,481	38,241	50,591	49,069	205,382
Seneca	50	360	5	338	3	1,363	2	200	184,082	53,040	35,042	2,485	274,649
Shelby	15¼	2,080	4	197	11	2,591	36	2,805	136,714	35,335	26,345	6,435	204,829
Stark	43	3,545	17	1,827	66	7,281	106	7,847	192,996	47,572	26,611	6,367	273,546
Summit	17	1,400	5	755	17	1,987	56	4,109	107,554	52,629	17,367	6,267	183,817
Trumbull	46½	1,167	3	66	42	1,630	96	3,344	114,772	154,417	42,583	4,728	316,500
Tuscarawas	14½	1,200½	7½	1,158	20¾	5,028	11½	1,103	87,405½	118,572	36,143	8,703	250,823½
Union	11	419	2	129	14	879	2	1	108,708	91,168	23,865	2,060	225,801
Van Wert	6	520	31	1,805	15	1,114	3	179	170,887	27,251	27,669	1,027	226,834
Vinton	4	107	....	....	4	25	8	370	24,233	78,617	41,813	21,736	166,399
Warren	53	2,010	11	346	25	619	19	1,040	124,725	52,077	23,180	7,275	207,257
Washington	8	132	2	53	11	770	109	4,202	79,007	135,645	49,946	18,353	282,951
Wayne	19	2,432	11½	2,537	61	3,787	59¾	2,725	208,246½	51,511¼	37,520	6,904	304,214¾
Williams	15	1,491	9	446	12	1,205	1	124	174,680	59,684	27,258	1,175	262,797
Wood	41	1,142	19	309	89	984	42	1,155	185,504	37,273	22,166	2,651	247,594
Wyandot	5	603	1	219	31	819	9½	561	123,455	63,340¾	21,636¾	2,828½	211,261
Totals	3,725	160,169½	1,277⅝	48,844	2,626⅝	158,825	5,359⅞	199,857¼	9,165,882⅚	6,620,446¼	2,470,801½	664,782¾	18,921,913⅓

AGRICULTURAL STATISTICS—Continued.

Counties.	Horses.	Cattle.				Sheep.					Hogs.		Wool.
	Number owned in April, 1905.	Beef cattle owned in April, 1905.	Milch cows owned in April, 1905.	All other cattle owned in April, 19(5.	Total number owned in April, 1905.	Number owned April, 1905.	Killed by dogs 1904.	Value 1904.	Injured by dogs 1904.	Value 1904.	Total number owned in April ,1905.	For summer markets, 1905.	Pounds shorn 1904.
Adams	4,487	151	4,307	5,993	10,451	9,514	110	$411	44	$65	8,506	1,103	25,560
Allen	6,321	200	6,894	5,563	12,657	12,860	223	1.098	126	313	19.098	2,914	64,999
Ashland	5,647	495	6,839	4,823	12,157	25,142	227	10.512	183	329	11,284	868	145.780
Ashtabula	7,598	166	20,202	7,885	28,253	6,359	370	1,472	153	502	3,790	514	39.366
Athens	2,661	400	3,320	4,101	7,821	34,332	276	674	92	181	1,564	68	240.263
Auglaize	6,969	633	7,910	6,877	15,420	5,485	152	638	112	445	21,414	4,642	28,713
Belmont	5,369	398	7,491	6,195	14.084	53,303	377	1,252	548	534	5,757	523	340.074
Brown	5,799	212	6,127	5.179	11.518	6.566	159	784	109	388	15,658	2,701	32,945
Butler	8,019	630	8,862	5,149	14,641	5,614	92	456	29	118	18,851	2.983	30.436
Carroll	3,964	509	6,311	4,777	11.597	47,787	420	1,284	222	489	6,347	1,124	314.190
Champaign	9,062	891	7,616	8,507	17,014	19.472	144	771	211	397	32,915	9.752	84.601
Clark	7,978	1,634	8.227	6.900	16.761	18,715	248	770	277	470	21,054	4,728	107.295
Clermont	5,724	249	7.399	2,086	9,734	2.660	112	469	37	69	10,064	1.290	13,976
Clinton	8.130	2,143	6,609	4.648	13,400	10,842	162	729	103	241	32,666	14,037	99,304
Columbiana	7,403	287	13.757	5,090	19.134	21,131	312	1,040	287	754	9.384	873	125.685
Coshocton	5,213	1,689	6.862	7.338	15,889	76,758	393	1,275	338	725	9,507	2,716	523,301
Crawford	6,850	705	7,411	6,692	14.808	38.911	317	1,248	272	501	20,419	3,868	227,544
Cuyahoga	5,498	97	11.053	1,704	12,854	3,377	191	1,250	51	128	1,777	283	21,391
Darke	15,549	398	14,071	9,713	24,182	4.006	94	522	13	100	34.946	9,237	30.473
Defiance	5,720	292	6,804	4.035	11,131	11,983	146	426	81	213	15.934	2,895	78.404
Delaware	6,265	712	8,886	7,586	17,184	35,422	176	762	95	195	15,609	6,673	214.661
Erie	4,052	101	4.317	2,320	6.738	8,372	37	134	16	54	5.702	1,055	49,261
Fairfield..........	8,874	1.856	8.383	8,842	19,081	9,960	267	1,190	65	141	27.502	9,815	59.366
Fayette	7.052	2,697	3.930	9,115	15,742	5,885	43	219	36	95	28.448	10,358	30,328
Franklin	8,696	1,096	10,797	5,538	17.431	6,988	198	1,024	75	325	18.982	4,763	32,632
Fulton............	5,902	683	9.511	4,168	14,362	12,052	156	545	492	496	20.731	11.176	79.895
Gallia	3,859	75	4.381	4.536	8.992	9.670	105	378	43	101	3.983	70	34.083
Geauga	4,313	115	13.826	4,879	18.820	3,792	82	344	28	56	2,782	476	19.823
Greene	8,147	724	9,482	6,697	16,903	13.887	313	1.447	133	391	26,207	6,818	100.203
Guernsey	4,030	537	5.886	5,959	12.382	58,619	220	709	161	371	3,518	567	385,649
Hamilton	3,478	353	5.322	713	6.388	1,411	30	134	30	90	4,037	340	5.343
Hancock	8,088	477	9,847	10,310	20,634	28,468	222	819	120	298	30,953	4,851	198.069

Hardin	5,752	240	6,081	8,104	14,425	23,117	136	544	112	195	19,022	1,787	130,451
Harrison	5,092	817	5,390	3,522	9,729	86,263	399	1,378	231	477	4,140	322	625,140
Henry	6,322	167	7,722	4,426	12,315	5,140	34	146	11	28	16,441	3,314	30,745
Highland	7.370	1,414	6,216	10,699	18,329	11,821	440	1,598	183	422	27,238	7,769	59,008
Hocking	3,170	721	3,401	4,505	8,627	12,272	122	406	120	233	4,178	424	75,656
Holmes	12,748	384	6,993	5,174	12,551	17,509	416	778	8,763	654	11,606	2,012	80,997
Huron	6,728	475	7,596	5,282	13,353	43,649	419	1,603	251	461	10,510	2,256	321,771
Jackson	2.363	360	3,014	5,723	9.097	3,756	122	332	33	79	2,746	75	18,617
Jefferson	3,832	612	5,833	3,303	9,748	39,108	860	2,448	432	776	4,585	140	264,193
Knox	6,285	656	7,708	7,970	16,334	87,239	129	361	....	....	17,880	3,049	674,802
Lake	4,481	239	5,530	1,732	7,501	3,626	148	449	56	166	1,555	67	14,873
Lawrence	2.413	454	2,904	3.937	7,295	818	48	152	54	118	2,429	19	3,163
Licking	10,937	1,176	12,662	14,529	28,367	86,601	990	3,436	444	917	23,513	8,257	525,813
Logan	7,988	1,413	7,656	6.864	15,933	22,346	538	1,714	122	257	22,933	5,387	148,083
Lorain	6,806	1,136	11,861	6,944	19,941	11,653	224	885	242	693	5,833	1,497	78,496
Lucas	4,498	276	6,855	1,458	8,589	1,185	113	892	89	225	7,672	2,547	10,228
Madison	9,480	2,294	5,477	10,645	18,416	14,036	203	820	153	449	31,538	12,102	70,527
Mahoning	6,317	258	12,958	5,750	18,966	14,581	162	1,305	100	511	7,010	486	86,957
Marion	6,273	1,056	5,443	6,374	12.873	39,869	159	660	96	155	25,037	7,716	237,484
Medina	6,519	506	9,751	3,831	14.088	16,625	101	357	84	752	7,082	1,425	111,689
Meigs	3,493	154	3,694	4,255	8,103	19,328	224	828	116	126	2,080	9	141,077
Mercer	7,974	539	8,286	7,792	16,617	7,095	96	550	55	190	23,660	4,966	40,513
Miami	8,740	1,282	8,004	4,338	13.624	1,349	70	304	56	190	14,373	3,316	5,470
Monroe	5,017	811	7,287	5,044	13,142	8,570	322	1,140	151	302	4,966	238	54,792
Montgomery	10,207	845	10,789	4,482	16,116	1,577	14	68	1	5	17,589	1,759	6,936
Morgan	3,904	364	4,448	5,668	11,480	54,542	383	1,418	182	448	3,634	242	375,818
Morrow	6,741	647	6,471	6,723	13,841	54,047	222	890	201	459	10,942	3,639	390,846
Muskingum	6,896	908	8,949	10,693	20,550	79,202	532	1,422	209	426	77,652	1,277	487.430
Noble	4,223	1,083	5,171	8.111	14,365	46,656	199	654	113	265	4,294	262	293,441
Ottawa	4,392	432	5,028	1,909	7,369	3,942	23	67	14	39	6.909	1,789	24.287
Paulding	5,517	481	4,916	2.154	7,551	6,241	128	466	74	267	13,936	2,616	32.860
Perry	4,681	304	5,123	7,623	13,050	23,796	547	1,794	216	472	7,415	1,794	142,103
Pickaway	8,129	1,479	6,546	12,220	20,245	5,442	173	758	74	134	22,490	5,755	27,346
Pike	3,263	327	2,403	3.324	6,054	3,499	56	282	38	241	5.514	638	17,294
Portage	6,913	330	14,414	5,020	19.764	12,770	338	1,619	135	441	6.301	747	81,813
Preble	8,241	815	8,143	6.617	15,575	3,542	109	502	40	200	27,924	5,480	23,581
Putnam	7,452	459	8,589	6,619	15,667	7,661	87	360	49	114	26,844	3,654	42,325
Richland	6,964	176	9,729	6,356	16.261	29,894	203	729	78	178	16,966	1.527	215,985
Ross	6.563	1,208	4,590	9,433	15,231	6,752	203	832	32	105	18,091	3,048	13,874
Sandusky	7,172	547	7,505	4,429	12,481	12,657	65	211	3	17	19.618	1,723	63.532
Scioto	4,671	545	4,314	3,764	8,623	1,079	32	104	68	160	6.174	114	4,725
Seneca	8,367	167	10,264	7,056	17,487	30,644	268	921	133	577	28,336	7,828	158,573
Shelby	7,980	144	8,397	6,376	14,917	4,086	54	265	19	44	16,686	1,756	22.383
Stark	11,190	377	15,991	8,041	24,409	12,492	243	1,068	395	715	17,447	721	76.755
Summit	6,355	133	12,064	6,003	18,200	4,155	166	614	68	115	6,994	226	28.682
Trumbull	8,165	1,524	17,661	8,976	28,161	10,684	397	1,547	131	362	8,630	795	67.197
Tuscarawas	6,467	544	10,658	7,890	19,092	25,050	332	1,226	214	237	10,006	1,363	142.171
Union	6,961	547	7,024	7,809	15,380	28,719	323	1,339	125	377	27.394	5.623	150.453
Van Wert	7,121	117	6.537	6,026	12,680	9,038	192	898	119	404	22,049	5,314	59.034
Vinton	1,969	229	2,270	3,357	5,856	12,155	208	631	174	268	1,798	80	79.719
Warren	7,047	524	7,525	4,139	12,188	4,699	183	837	57	182	17.600	4,877	20.622
Washington	5,420	787	6,510	6,371	13,668	28,010	225	718	160	203	4,026	595	141.076
Wayne	10,239	649	13,134	8,807	22,590	16,119	91	387	60	273	20.789	4,141	99.838
Williams	6.147	629	6,690	5,536	12,855	20,419	68	335	185	439	16.713	6,844	161.361
Wood	9,132	1,935	9,812	5,164	16,911	9,238	190	590	80	240	33.168	10,523	45.447
Wyandot	6,274	600	6,018	5,514	12,132	53,520	332	908	226	526½	22,762	6.468	323.912
Totals	572,078	58,901	688,645	529,329	1,276,875	1,809,226	19,435	$82,332	20,209	$26,893	1,264,107	286,479	11,426,576

AGRICULTURAL STATISTICS—Concluded.

Counties.	Domestic Animals Died from Diseases in 1904.							
	Horses.		Cattle.		Sheep.		Hogs.	
	Number.	Value.	Number.	Value.	Number.	Value.	Number.	Value.
Adams	118	$6,000	184	$3.661	221	$667	348	$1,730
Allen	122	8,220	102	2,210	230	792	1,623	7,383
Ashland	113	8.170	89	2,637	416	1.320	179	862
Ashtabula	174	9.090	355	10,367	208	802	189	1.403
Athens	40	2,807	108	1,445	221	412	30	265
Auglaize	148	10,855	181	4.320	195	941	1,414	6.861
Belmont	91	6,125	161	3,699	613	1.521	127	1.001
Brown	115	6,223	272	4,483	287	1,162	680	3.543
Butler	147	8,720	255	5,630	216	1,022	7,092	36,329
Carroll	82	6,180	134	2,920	628	1,414	59	574
Champaign	145	11,769	190	3.964	389	1,409	756	3.826
Clark	180	13,243	299	4,530	180	690	1,104	5,368
Clermont	182	8.155	195	4,523	118	592	405	2,522
Clinton	147	10,432	146	3,365	373	1.566	1,481	6,857
Columbiana	182	7.505	193	4,740	456	1.216	176	955
Coshocton	123	9,259	164	3,750	994	2.400	125	711
Crawford	82	6,065	78	2,155	354	1,115	2,119	9,042
Cuyahoga	153	10,015	245	9,276	127	510	177	1,337
Darke	297	22,427	360	8,681	295	1.164	1,702	8,775
Defiance	119	8,710	133	3,501	453	1.733	668	3.191
Delaware	114	9,990	196	4,520	444	1,330	148	915
Erie	97	7.332	90	2.669	121	425	770	3,968
Fairfield	165	12,690	310	5.371	196	881	1,277	6,217
Fayette	190	8,689	210	5,332	160	671	2,329	8,767
Franklin	288	19.915	255	6,973	274	1,063	2,587	9.950
Fulton	134	13,135	143	4,229	358	1,526	500	2,624
Gallia	107	4,768	181	2,304	306	861	134	699
Geauga	110	7,300	244	7,729	177	594	131	956
Greene	164	12,686	162	4,235	311	1,174	1,529	6,510
Guernsey	63	3.550	120	2,422	741	1,511	92	507
Hamilton	94	4,737	159	2,575	44	166	332	1,905
Hancock	120	11,461	249	5,917	923	3,835	682	3,331

Hardin	131	8,070	133	2,877	329	1,181	1,506	7,481
Harrison	264	5,485	88	2,128	804	1,859	80	478
Henry	169	13,800	182	4,628	238	1,115	1,446	5,850
Highland	139	8,262	162	4,295	407	1,574	1,759	6,339
Hocking	101	5,516	137	2,527	193	875	189	909
Holmes	75	4,929	161	2,732	425	1,556	250	1,096
Huron	167	11,060	145	4,012	836	2,761	224	1,273
Jackson	48	2,770	114	1,925	217	466	70	385
Jefferson	57	4,700	154	4,094	650	1,369	127	928
Knox	83	5,748	102	2,620	444	1,731	243	954
Lake	34	1,490	41	902	32	100	17	164
Lawrence	91	4,280	221	2,930	33	112	142	712
Licking	219	13,525	250	6,164	1,693	3,899	519	2,971
Logan	185	15,755	213	5,327	410	1,454	1,215	4,918
Lorain	107	7,916	182	4,769	337	1,105	130	1,024
Lucas	131	9,007	156	4,035	24	201	549	3,227
Madison	231	18,730	236	6,720	355	1,335	5,181	22,213
Mahoning	118	7,898	201	5,630	343	1,101	157	1,099
Marion	78	6,830	109	2,504	581	1,899	3,029	13,399
Medina	126	10,845	156	4,205	498	1,723	163	1,087
Meigs	78	4,030	88	1,784	296	737	78	501
Mercer	198	19,286	298	6,409	443	2,314	3,601	14.928
Miami	247	13,783	234	4,997	58	238	768	5,236
Monroe	127	9,351	176	3,496	140	644	137	1,068
Montgomery	283	18,632	315	7,692	90	347	799	5,062
Morgan	69	4,470	147	3,228	608	1,417	130	734
Morrow	127	10,801	124	3,094	482	1,558	183	940
Muskingum	175	9,953	287	5,677	850	1,896	170	1,099
Noble	65	3,925	105	1,835	353	916	57	470
Ottawa	48	3,005	55	1,205	68	195	227	843
Paulding	161	8,685	93	2,395	212	867	778	3,964
Perry	77	5,435	123	2,433	166	480	83	586
Pickaway	175	14,155	195	4,621	184	835	1,966	9,642
Pike	110	5,140	183	2,212	135	493	219	1,112
Portage	162	9,965	302	7,830	341	1,163	148	1,066
Preble	169	12,470	235	5,545	158	715	2,396	12,035
Putnam	159	13,649	280	5,053	370	1,423	3,097	31,082
Richland	170	14,918	157	3,722	503	1,586	199	1.149
Ross	140	8,575	134	2,996	201	714	373	1.774
Sandusky	300	7,010	80	2,249	341	1,287	237	1.270
Scioto	87	4,875	134	2,175	76	190	142	957
Seneca	203	17,655	206	5,432	749	3,437	1,054	6.236
Shelby	104	7,712	182	3,799	97	474	593	2,361
Stark	337	21,871	397	7,979	475	1,427	490	2.617
Summit	178	11,384	283	8,236	185	1,578	452	2.670
Trumbull	374	12,521	390	11,603	285	1,449	331	2.256
Tuscarawas	142	11,026	236	4,536	601	1,600	211	1.189
Union	120	10,785	142	3,790	670	2,455	727	3.471
Van Wert	101	9,397	374	5,458	474	2,037	1,180	5,729
Vinton	40	2,255	90	1,455	164	389	146	603
Warren	189	11,381	236	5,232	225	982	946	5,533
Washington	73	3,860	98	2,382	375	1.168	50	297
Wayne	316	27,188	320	7,396	772	2,990	455	2,681
Williams	107	9,730	111	2,923	800	3.864	379	2,401
Wood	246	20,657	189	5,156	340	1,802	535	3.371
Wyandot	155	12,386	187	4,640	1,343	3,194	933	4.557
Totals	12,772	$854,760	16,492	$379,822	33,508	$112,767	72,234	$366.681

TABLES OF COMPARATIVE STATISTICS AS COMPILED BY THE SECRETARY OF AGRICULTURE

COMPARATIVE TABLE SHOWING PRODUCTION OF WHEAT IN OHIO FOR TEN YEARS.

Counties.	Number of Bushels.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	175,516	148,545	178,584	150,417	125,325	218,156	304,058	241,235	97,769	199,005
Allen	201,866	324,217	524,268	473,816	49,611	560,722	400,588	328,024	318,955	451,775
Ashland	259,605	526,045	534,061	386,185	199,992	602,971	521,222	597,622	274,753	343,502
Ashtabula	18,432	134,833	154,276	121,544	51,554	241,819	291,870	200,208	69,913	132,485
Athens	86,082	93,066	87,075	108,126	128,315	151,795	181,279	202,247	191,676	130,891
Auglaize	332,561	487,651	862,655	697,791	26,310	775,151	509,909	399,480	365,547	566,304
Belmont	124,515	274,261	299,477	237,777	174,399	274,604	356,622	406,539	331,471	261,776
Brown	158,472	149,303	178,585	176,357	130,315	259,818	353,060	251,883	94,296	290,175
Butler	654,191	707,537	1,103,105	818,415	237,830	108,176	1,065,347	916,826	258,458	543,739
Carroll	121,654	198,306	204,374	183,182	80,854	207,543	274,745	250,066	138,622	122,356
Champaign	180,371	458,138	623,121	524,919	44,697	783,253	648,804	514,096	275,079	437,118
Clark	275,020	399,583	587,708	422,764	54,618	806,942	625,155	539,361	319,384	442,127
Clermont	86,641	100,295	113,865	117,341	74,808	192,959	269,413	162,288	49,276	216,692
Clinton	489,514	459,657	526,598	348,227	33,690	687,147	572,322	498,287	105,842	367,423
Columbiana	264,923	360,164	347,311	469,590	205,112	320,530	423,274	431,575	220,331	166,151
Coshocton	148,294	303,451	353,663	226,829	68,657	338,998	437,704	550,925	131,234	243,994
Crawford	390,777	401,127	499,291	364,681	144,479	650,523	453,157	482,632	195,698	344,773
Cuyahoga	89,477	141,496	199,345	212,816	72,019	202,621	219,437	162,382	79,742	141,978
Darke	335,161	815,840	1,253,069	1,180,245	2,137	1,351,096	1,065,613	774,220	572,758	796,963
Defiance	174,806	150,951	218,495	369,932	197,867	207,468	377,332	252,654	284,279	452,197
Delaware	156,652	124,857	136,167	131,695	50,637	479,210	279,802	208,277	62,604	159,482
Erie	178,772	243,747	347,229	265,323	61,513	388,458	354,051	414,918	182,373	237,095
Fairfield	606,372	585,493	591,968	399,879	82,395	677,034	736,986	679,559	222,234	406,864
Fayette	392,219	425,866	611,380	442,129	20,516	958,175	637,272	646,045	105,151	351,526
Franklin	415,764	346,855	453,293	409,985	64,551	716,942	598,842	563,884	70,477	363,176
Fulton	125,359	173,507	204,034	289,448	149,010	82,381	512,947	365,356	322,780	436,418
Gallia	98,537	116,478	85,019	131,520	199,466	216,132	268,480	242,274	206,417	192,651
Geauga	39,693	115,501	120,182	98,753	32,643	173,755	201,198	156,257	59,990	66,521
Greene	357,349	593,092	859,786	549,071	86,913	850,817	709,532	616,485	37,382	620,807
Guernsey	97,442	143,339	146,679	166,050	67,459	205,903	261,054	277,848	192,155	162,366
Hamilton	140,508	425,715	466,168	238,394	114,346	294,745	289,073	260,505	48,290	168,583
Hancock	298,599	509,804	867,477	776,659	88,553	946,112	759,325	626,425	401,044	695,428
Hardin	132,458	303,581	469,907	498,913	76,888	620,912	396,011	289,929	219,319	342,380
Harrison	62,962	161,842	196,065	157,152	70,144	159,877	226,375	234,257	159,966	143,405

Henry	146,945	335,378	372,963	475,426	340,478	207,346	676,004	518,881	464,426	583,984
Highland	440,412	323,171	602,026	250,277	20,649	413,624	549,559	535,638	141,729	552,977
Hocking	113.155	129,578	112,283	79,579	33,972	158,223	218,415	189,996	200,905	108,986
Holmes	227,257	456,296	439,892	360,488	210,686	457,884	435,711	449,842	147,498	265,621
Huron	395,487	475,545	667,678	552,005	76,904	781,246	506,725	541,346	300,953	423,678
Jackson	50,620	67,904	50,162	64,235	85,555	134,424	163,863	141,424	109,462	116,945
Jefferson	88,091	183,173	216,457	179,125	117,194	177,028	272,035	293,037	243,564	151,436
Knox	419,860	429,047	326,189	249,389	209,751	526,682	543,823	621,728	166,459	301,897
Lake	20,185	53,527	64,341	45,683	14,274	100,367	107,577	91,714	56,076	56,733
Lawrence	27,223	31,141	35,903	70,037	73,565	101,183	97,307	67,438	51,028	82,561
Licking	334,272	442,639	319,634	223,336	92,001	615,650	634,725	416,127	188,523	276,716
Logan	99,640	372,444	609,775	500,450	45,119	739,302	414,629	328,759	218,496	253,941
Lorain	258,228	356,840	408,819	335,170	100,296	402,773	393,995	409,387	173,616	265,535
Lucas	53,864	122,761	193,038	204,711	160,815	46,565	332,367	262,385	196,192	198,909
Madison	108,951	136,341	239,983	302,144	28,197	891,327	655,771	420,933	48,078	256,573
Mahoning	184,228	274,480	255,104	245,291	111,987	231,788	326,816	408,650	119,012	117,701
Marion	222,524	222,556	380,462	244,409	94,822	605,021	350,654	323,423	136,513	251,082
Medina	308,927	383,886	431,984	398,232	135,949	311,808	452,860	429,131	119,134	289,969
Meigs	119,100	135,563	125,041	133,353	220,452	237,695	264,098	287,824	229,454	205,729
Mercer	417,556	450,140	565,285	595,153	9,029	766,255	446,749	367,945	360,080	556,136
Miami	406,288	619,491	957,574	747,099	99,305	876,799	861,354	668,198	565,799	496,159
Monroe	138,499	215,103	184,316	125,685	133,306	239,907	241,937	272,828	219,341	201,800
Montgomery	318,074	616,037	905,662	613,810	116,630	859,863	812,677	564,339	373,714	450,381
Morgan	160,337	141,511	112,575	141,974	111,445	234,544	206,117	228,180	256,094	209,280
Morrow	207,837	276,293	218,659	118,317	112,168	434,262	288,895	241,085	155,373	171,021
Muskingum	235,024	283,998	288,752	253,727	102,953	367,125	464,467	429,171	289,245	241,458
Noble	106,083	154,181	134,789	136,422	106,294	164,328	171,001	232,364	175,716	193,106
Ottawa	122,532	171,418	328,997	282,899	121,325	184,651	326,944	323,890	189,782	304,214
Paulding	104,008	153,925	241,148	354,369	356,381	74,689	302,566	120,950	205,530	395,159
Perry	317,231	181,779	183,569	145,070	33,073	252,250	329,685	306,435	233,332	193,292
Pickaway	729,031	634,030	885,657	685,119	114,004	994,225	800,881	951,527	167,063	628,283
Pike	133,069	94,178	108,481	141,117	112,698	203,170	258,229	228,109	138,219	202,996
Portage	239,819	348,747	362,178	303,799	192,354	370,435	457,506	370,609	130,141	179,519
Preble	327,397	531,004	1,061,637	649,550	1,647	952,659	922,193	601,159	459,883	568,561
Putnam	199,355	525,643	696,675	651,576	300,305	879,735	643,313	561,813	444,928	730,761
Richland	363,954	607,350	553,359	471,923	221,532	690,417	615,171	617,176	316,239	423,980
Ross	551,973	462,762	572,107	454,629	132,849	634,346	760,329	771,331	328,800	464,813
Sandusky	259,329	449,398	665,273	533,444	71,472	1,188,685	697,025	740,777	472,128	677,338
Scioto	164,860	130,278	147,060	193,688	244,817	246,556	288,828	263,944	152,346	153,666
Seneca	547,829	723,383	1,052,977	839,966	83,566	1,089,356	891,059	874,190	470,361	766,315
Shelby	349,980	450,296	805,963	646,641	6,407	713,427	505,042	351,181	321,904	452,382
Stark	601,387	891,259	978,880	784,088	571,534	775,863	993,695	900,724	299,291	447,385
Summit	274,878	427,288	488,085	404,454	304,516	535,302	614,415	525,724	241,912	247,642
Trumbull	70,359	207,699	188,209	180,176	68,465	274,151	296,383	245,415	55,433	122,770
Tuscarawas	190,983	408,564	417,197	245,283	63,053	374,922	515,940	500,700	201,480	299,399
Union	166,324	170,175	230,449	278,924	45,962	526,909	292,458	298,462	41,869	160,091
Van Wert	278,222	322,420	471,458	532,395	209,572	534,494	559,256	365,988	455,580	618,318
Vinton	40,685	58,961	58,714	43,520	50,452	101,428	134,096	107,085	88,650	78,035
Warren	304,870	358,854	446,659	332,929	54,288	456,352	529,844	411,365	44,267	346,980
Washington	219,297	251,281	221,023	196,019	244,163	411,392	394,084	417,713	425,406	399,742
Wayne	629,155	900,144	926,362	708,096	565,707	789,228	867,836	945,872	306,584	483,730
Williams	187,200	231,349	235,624	291,612	57,657	304,170	352,437	286,815	221,835	367,543
Wood	157,958	453,687	562,169	621,036	321,605	507,902	796,772	724,633	505,318	638,653

COMPARATIVE TABLE SHOWING PRODUCTION OF WHEAT IN OHIO FOR TEN YEARS—Concluded.

Counties.	Number of Bushels.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Wyandot	279,306	335,328	391,401	386,599	88,332	607,221	423,694	418,757	221,762	329,670
Total product	21,090,222	29,074,367	36,901,212	31,150,373	10,866,155	41,469,703	41,041,671	36,718,686	19,511,788	28,759,647
Total area	1,720,623	1,981,573	2,054,588	2,176,723	2,468,280	2,957,616	2,637,788	2,273,712	2,574,364	2,483,855

Average area for 10 years, 2,332,912 acres.
Average product for 10 years, 29,658,382 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF BARLEY IN OHIO FOR TEN YEARS.

Counties.	Number of Bushels. (Includes Fall and Spring Barley.)									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	....	....	....	200	....	....	....	130	....	36
Allen	5,635	4,237	14,139	14,391	17,937	1,742	2,757	3,854	1,662	1,216
Ashland	1,216	2,651	3,317	3,582	2,037	3,758	2,798	3,640	3,222	4,274
Ashtabula	575	636	1,283	764	953	720	962	1,637	1,489	1,538
Athens	336	....	....	....	....	....	....	....	....	6
Auglaize	1,120	512	3,527	6,517	8,227	2,919	3,304	6,590	21,324	31,715
Belmont	156	78	431	509	472	542	1,381	1,429	1,547	1,962
Brown	80	20	2	72	36	26	....	....	40	....
Butler	26,124	35,196	56,519	33,399	8,680	25,665	20,695	62,521	56,595	153,324
Carroll	....	45	....	51	286	141	36	55	76	120
Champaign	1,890	2,060	1,394	5,859	10,153	3,841	1,345	640	430	824
Clark	2,520	620	2,121	2,672	2,868	2,399	144	569	1,247	6,535
Clermont	....	8	....	20	....	394	140	8	....	219
Clinton	518	90	3,155	1,910	681	1,390	585	1,110	338	1,012
Columbiana	60	65	255	242	420	455	700	503	345	335
Coshocton	84	118	453	1,437	884	562	279	15	125	14
Crawford	825	1,944	3,344	3,261	2,434	2,443	5,179	4,668	5,827	3,689
Cuyahoga	140	262	658	297	1,198	40	530	194	51	....
Darke	2,430	2,516	5,320	11,936	21,780	7,521	14,860	13,473	32,088	31,212
Defiance	48,274	52,472	83,678	48,737	43,279	42,213	27,287	21,679	18,594	17,928
Delaware	....	....	292	1,502	1,105	1,240	....	200	25	....
Erie	8,190	6,555	10,674	11,549	9,878	7,768	16,019	18,392	13,394	19,116
Fairfield	....	1,335	1,650	1,534	1,059	1,227	460	895	2,144	1,323
Fayette	250	140	1,045	7,903	2,785	1,969	172	466	....	206
Franklin	360	340	167	1,067	1,008	71	....	1,000	32	24
Fulton	33,319	29,123	**32,189**	**14,146**	**34,268**	**29,568**	**12,432**	**6,962**	**5,118**	**9,096**
Gallia	....	....	....	25	7	....	10	3	....	....
Geauga	150	160	758	850	892	567	237	198	63	174
Greene	180	96	1,203	1,236	2,219	772	395	2,254	225	6,158
Guernsey	98	75	225	32	15	230	270	829	1,063	41
Hamilton	2,394	4,820	6,167	3,331	1,856	2,627	4,251	14,597	7,056	32,062
Hancock	4,537	4,380	16,385	34,969	43,814	12,156	5,768	4,032	4,933	4,565
Hardin	1,140	1,414	5,254	7,896	2,829	468	250	336	....	50
Harrison	60	....	....	47	724	1,066	1,204	1,170	460	260
Henry	165,424	88,753	127,350	65,137	95,467	91,119	42,163	40,834	20,785	13,096
Highland	1,080	500	1,241	823	440	360	....	26	464	1,180
Hocking	....	....	....	113	....	....	10	....	97	....
Holmes	....	....	887	1,499	890	342	638	1,161	736	829
Huron	580	1,285	3,946	5,731	2,563	4,055	9,973	8,828	4,933	5,552

COMPARATIVE TABLE SHOWING PRODUCTION OF BARLEY IN OHIO FOR TEN YEARS—Concluded.

Counties.	Number of Bushels. (Includes Fall and Spring Barley.)									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Jackson	....	200	....	18	....	....	5	....	....	4
Jefferson	320	260	527	516	652	1,137	1,142	1,623	1,817	141
Knox	....	178	540	220	935	1,583	530	84	211	1,462
Lake	3,402	1,234	632	1,613	3,610	1,148	314	417	690	2,728
Lawrence	....	....	140	....	....	....	....	....	48	....
Licking	816	620	800	3,055	412	116	245	684	....	109
Logan	1,536	2,533	4,731	8,237	3,777	1,127	855	2,215	1,811	2,321
Lorain	1,275	1,125	1,641	1,911	1,640	2.246	2,303	742	518	1,216
Lucas	20,192	16,130	19,135	10,100	10,735	14,985	10,965	8,544	8,461	6,968
Madison	1,392	800	1,727	8,914	10,746	567	250	305	60	389
Mahoning	....	....	473	110	182	193	540	49	230	93
Marion	560	200	533	648	1,300	197	859	92	460	578
Medina	2,048	438	1,447	2,064	5,745	4,100	2,372	1,098	57	200
Meigs	24	....	60	28	19	12	....	628	1,000	862
Mercer	23,046	15,439	37,330	38,204	25,180	10,337	6,350	5,463	26,828	41,492
Miami	....	....	420	2,573	6,102	2,277	3,346	4,119	12,296	13,661
Monroe	32	100	93	20	67	7	....	....	....	....
Montgomery	875	1,670	3,120	4,722	581	3,741	2,987	9,460	14,026	30,299
Morgan	48	....	30	24	....	85	65	2	41	61
Morrow	....	....	576	101	121	35	....	....	84	464
Muskingum	120	740	623	1,052	333	83	200	225	1,459	1,467
Noble	....	....	....	121	....	4	....	100	50	425
Ottawa	167,008	59,467	57,332	55,881	31,845	30,756	48,883	52,933	61,266	47,118
Paulding	138,480	140,450	91,805	241,388	220,751	135,305	74,924	32,166	6,611	2,546
Perry	....	....	450	200	....	135	25	....	80	87
Pickaway	375	....	253	1,840	5,262	125	....	1,200	....	1,300
Pike	198	....	....	101	2,100	50	....	660	....	....
Portage	378	436	157	68	390	35	320	....	156	1,621
Preble	551	277	1,840	1,963	860	1,235	1,785	2,046	8,087	12,878
Putnam	69,300	52,639	92,542	75.374	115,796	38,733	33,158	29,547	9,386	6,668
Richland	1,472	2,164	4,976	4.720	3,469	3,831	5,088	5,873	7,412	10,332
Ross	468	20	1,190	2,210	591	20	....	400	15	3,961
Sandusky	10,180	7,904	9,257	7,783	12,175	2,982	5,246	5,425	4,566	7,244
Scioto	....	....	....	93	....	42	320	1,105	500	1,249
Seneca	6,048	1,358	4,724	13,015	31,047	3,789	2,285	780	151	3,352
Shelby	2,400	24	1,374	2,401	2,532	2,970	4,302	8,001	33,949	60,875
Stark	462	199	351	1,582	1.475	728	1,429	806	899	1,897
Summit	713	840	781	321	293	206	1,008	776	450	415
Trumbull	1,000	128	432	50	296	36	....	75	16	214

Tuscarawas	....	....	100	70	343	92	362	1,162	51	56
Union	770	600	1,181	8,878	9,706	577	234	118	....	26
Van Wert	88,780	123,249	241,963	210,156	194,011	76,855	32,271	41,948	10,410	9,143
Vinton	....	....	....	....	11	....	....	250	....	....
Warren	3,438	10,015	17,287	12,456	7,822	8,126	9,830	12,217	9,934	30,365
Washington	88	54	25	....	....	5	28	....	301	....
Wayne	484	1,080	1,651	1,641	3,232	1,115	1,615	3,015	689	1,116
Williams	42,543	40,536	42,679	143,919	55,597	68,935	43,512	14,547	10,164	6,297
Wood	68,100	81,891	114,428	169,092	126,214	78,639	62,237	42,991	21,091	12,622
Wyandot	6,525	5,775	960	2,059	2,099	955	388	516	....	370
Total product	975,192	813,581	1,351,345	1,336,128	1,224,198	752,633	539,812	519,305	462,859	676,383
Total area	35,398	38,817	45,776	54,428	41,939	26,684	20,254	21,008	32,563	43,313

Average area for 10 years, 36,018 acres.
Average product for 10 years, 865,144 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF RYE IN OHIO FOR TEN YEARS.

Counties.	Number of Bushels.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	6,935	3,075	6,551	10,305	2,118	808	2,649	6,914	2,410	2,381
Allen	3,151	2,939	9,031	18,065	3,078	2,364	2,562	3,635	6,242	7,275
Ashland	2,814	5,519	8,961	10,916	2,964	1,353	2,935	13,216½	4,951	3,270
Ashtabula	6,362	12,115	21,123	23,362	5,411	4,985	6,671	8,288	6,214	10,454
Athens	1,020	555	1,042	933	451	440	....	1,835	2,606	1,167
Auglaize	3,872	2,184	6,306	27,524	3,038	1,731	3,600	5,629	4,709	4,739
Belmont	1,440	2,212	2,652	2,201	1,025	854	1,529	9,206	17,825	5,756
Brown	28,784	13,146	15,377	19,406	4,910	1,838	4,501	12,668	4,432	8,346
Butler	3,411	3,768	5,861	8,918	2,380	472	886	6,298	1,800	2,212
Carroll	1,562	482	1,816	2,949	803	528	2,277	6,454	3,074	2,034
Champaign	5,490	4,559	10,768	32,456	8,184	1,630	2,018	4,463	1,815	2,881
Clark	9,866	5,403	7,979	23,003	11,157	5,239	2,174	9,406	11,732	13,623
Clermont	20,341	9,170	19,916	35,940	12,626	6,589	9,462	10,649	4,011	13,968
Clinton	10,278	6,716	10,098	11,235	3,081	1,771	3,852	8,403	2,269	1,847
Columbiana	2,309	2,401	3,832	5,318	2,368	1,249	2,502	7,634	3,648	3,372
Coshocton	1,671	1,783	9,857	13,941	2,333	1,710	5,562	26,262	11,619	8,606
Crawford	1,370	1,036	4,515	2,137	379	473	1,519	3,784	1,235	5,579
Cuyahoga	6,858	9,482	14,557	25,166	8,790	5,658	9,265	15,982	9,038	12,520
Darke	4,741	3,455	7,160	36,384	6,568	4,470	8,735	16,759	15,950	10,198
Defiance	5,596	1,377	3,285	17,954	5,299	1,546	2,221	3,226	6,183	11,584
Delaware	6,424	6,971	12,293	8,403	2,236	1,067	2,343	3,273	1,880	2,295
Erie	2,848	4,044	10,424	20,771	6,304	2,260	3,883	13,591	12,477	12,656
Fairfield	5,993	5,086	12,433	33,708	4,401	1,789	3,853	15,157	7,189	4,061
Fayette	7,636	1,708	3,148	21,142	1,448	1,391	1,342	11,725	5,466	7,154
Franklin	23,071	12,556	18,146	32,171	7,055	2,783	3,581	21,017	4,271	3,658
Fulton	6,389	11,229	15,901	17,651	1,721	2,694	6,498	10,546	16,193	15,973
Gallia	3,132	3,412	1,747	760	519	238	1,024	2,121	1,403	1,446
Geauga	1,363	2,640	5,482	4,848	456	278	1,829	5,335	2,415	1,437
Greene	12,047	3,673	10,435	11,803	2,870	1,790	1,289	8,228	4,091	7,242
Guernsey	1,466	1,554	4,132	14,161	2,154	639	1,551	6,524	4,073	1,801
Hamilton	5,483	11,030	12,824	22,221	12,829	7,743	12,000	17,581	3,460	12,753
Hancock	3,359	4,328	10,953	48,919	6,980	3,044	3,887	6,529	6,173	17,601
Hardin	2,285	5,361	22,136	15,936	9,247	1,853	3,642	3,527	2,825	3,087
Harrison	646	177	981	1,875	557	291	559	1,414	1,501	1,403
Henry	21,349	27,217	62,212	109,447	79,586	23,478	43,195	58,383	67,203	74,818
Highland	8,910	2,528	16,230	29,452	2,935	1,108	3,702	19,533	4,778	5,362
Hocking	1,975	2,188	3,606	10,173	1,512	302	1,840	2,157	1,740	1,097
Holmes	883	3,647	8,058	8,718	2,358	1,130	7,042	17,048	6,322	7,495

Huron	1,495	330	4,527	23,082	2,077	1,656	2,851	8,907	3,697	6,816
Jackson	644	664	1,029	1,456	710	192	146	802	1,036	384
Jefferson	495	537	1,529	2,386	659	199	410	2,731	4,814	1,521
Knox	5,186	7,403	19,264	12,516	1,643	874	5,032	20,500	7,931	5,467
Lake	7,428	9,165	13,373	18,061	7,951	6,204	5,073	10,830	12,884	12,658
Lawrence	504	205	147	448	319	70	264	454	615	934
Licking	28,194	18,433	44,201	34,956	5,262	4,159	12,721	37,155	22,547	9,617
Logan	10,055	11,035	20,789	24,548	4,270	2,109	4,267	7,037	5,015	5,287
Lorain	3,132	3,825	2,845	9,795	1,146	391	1,245	7,570	5,179	4,329
Lucas	8,904	9,748	20,835	30,349	15,453	5,122	11,029	22,263	24,206	37,140
Madison	7,325	7,916	15,168	32,421	3,890	1,206	355	7,725	3,008	4,765
Mahoning	2,763	3,154	4,351	8,139	1,577	1,134	2,959	12,813	2,646	1,683
Marion	4,937	4,401	8,634	2,302	819	676	1,770	2,951	1,288	3,092
Medina	8,410	10,965	18,799	24,654	3,857	3,415	5,084	21,939	6,383	4,276
Meigs	2,940	1,925	2,215	2,256	940	449	1,003	2,420	1,876	778
Mercer	4,028	1,996	4,046	29,626	2,436	4,038	6,050	9,263	16,239	12,035
Miami	905	625	1,551	17,185	3,253	1,142	1,995	7,623	9,198	5,046
Monroe	2,087	2,847	5,719	4,616	2,207	2,020	3,284	11,289	13,562	4,073
Montgomery	3,762	1,836	9,968	10,972	996	404	1,785	5,470	5,062	3,504
Morgan	1,747	1,586	1,406	4,868	354	199	349	2,163	5,232	2,929
Morrow	2,776	6,808	22,222	6,810	1,847	1,866	3,287	9,990	4,998	7,819
Muskingum	6,358	5,643	12,960	19,244	4,469	1,595	3,436	12,737	15,952	6,280
Noble	880	1,296	1,361	1,465	510	310	342	3,109	4,830	2,171
Ottawa	1,920	2,280	9,474	27,273	6,269	1,743	4,347	10,449	9,734	22,332
Paulding	84,277	9,902	30,001	55,719	23,642	4,208	9,060	6,633	8,802	12,905
Perry	4,408	2,487	5,454	14,530	1,010	505	907	4,482	5,701	2,220
Pickaway	6,834	1,984	7,156	20,205	5,342	191	1,178	14,263	3,216	4,163
Pike	2,387	1,582	3,620	4,976	1,265	337	1,410	2,246	968	511
Portage	2,854	5,241	8,763	8,065	2,032	1,147	4,020	14,599	5,328	3,997
Preble	3,087	465	2,104	15,525	1,446	1,074	1,644	5,793	5,216	3,112
Putnam	13,435	11,740	33,324	62,281	12,176	4,722	5,371	8,633	11,088	24,673
Richland	3,871	5,387	11,945	10,137	3,918	2,783	6,138	17,553	7,031	10,231
Ross	4,904	2,673	5,916	9,687	1,936	843	3,286	11,730	6,695	4,341
Sandusky	3,038	2,952	13,095	31,449	4,959	2,145	2,762	10,074	8,805	12,086
Scioto	836	488	1,052	601	138	139	716	792	652	941
Seneca	1,205	815	4,840	16,466	2,644	811	1,700	3,928	1,061	4,796
Shelby	1,335	690	5,704	45,400	8,063	3,925	4,205	5,736	5,727	10,254
Stark	3,313	3,318	6,009	6,193	3,560	822	3,337	12,751	3,944	4,144
Summit	2,125	4,594	6,546	7,169	1,536	1,508	3,406	7,346	4,571	3,178
Trumbull	1,844	3,414	5,855	6,239	1,851	1,290	3,670	10,370	3,018	5,255
Tuscarawas	1,523	2,307	9,811	16,673	2,337	1,027	3,218	11,958	5,005	5,130
Union	14,848	9,067	15,385	9,692	1,659	1,599	1,742	4,853	1,470	1,261
Van Wert	9,719	10,396	23,085	56,521	17,262	3,982	6,851	7,663	20,510	23,152
Vinton	873	1,303	2,103	2,047	567	164	446	820	1,319	676
Warren	9,186	3,718	12,522	20,765	5,462	2,373	2,070	11,877	1,665	4,295
Washington	1,912	1,480	1,453	1,891	1,290	494	1,881	5,406	13,763	5,252
Wayne	3,554	5,341	11,221	9,979	3,274	688	1,822	9,793	1,785	3,688
Williams	4,839	3,157	3,199	13,746	2,643	3,298	3,444	7,219	9,376	14,838
Wood	3,533	5,401	15,277	62,579	12,018	3,524	5,801	11,070	15,124	24,651
Wyandot	1,179	1,484	3,872	8,266	2,179	1,352	2,609	4,942	2,545	3,970
Total product	550,924	416,735	987,553	1,606,493	435,254	185,710	339,757	855,120	617,544	671,807
Total area	42,996	41,180	73,066	129,414	34,262	15,359	28,737	65,684	99,639	72,429

Average area for ten years, 60,277 acres.
Average product for ten years, 666,690 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF OATS IN OHIO FOR TEN YEARS.

Counties.	Number of Bushels.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	81,223	59,534	94,721	84,665	37,684	17,929	21,438	43,329	77,689	38,975
Allen	605,147	302,810	432,052	397,914	584,091	251,511	281,999	349,308	401,856	311,852
Ashland	713,459	565,682	771,266	600,159	627,475	659,558	587,134	609,853	571,221	544,881
Ashtabula	592,084	869,065	872,233	692,341	866,934	794,959	653,504	618,906	870,931	968,118
Athens	47,550	22,175	38,504	34,477	27,310	14,862	26,205	32,725	58,611	31,493
Auglaize	961,681	471,366	666,275	538,610	847,811	350,996	367,136	436,821	509,627	413,973
Belmont	331,365	192,775	254,552	192,815	201,014	17,338	133,704	183,874	228,195	144,951
Brown	211,317	133,557	227,823	176,719	131,018	107,276	69,462	107,478	117,588	118,490
Butler	377,936	209,774	378,654	231,571	432,839	110,330	119,349	234,489	584,500	399,513
Carroll	373,558	331,410	371,666	323,903	470,137	441,821	364,044	375,584	403,262	357,465
Champaign	1,383,138	602,733	747,141	357,408	788,270	165,204	262,664	278,744	389,235	303,857
Clark	733,043	302,931	433,413	243,432	447,183	135,621	159,362	190,345	224,295	212,029
Clermont	347,474	175,627	322,620	209,864	197,330	128,181	119,974	117,593	157,480	190,139
Clinton	377,170	121,359	356,059	162,546	232,554	49,114	53,357	99,373	183,517	100,621
Columbiana	563,103	621,583	654,120	477,506	741,394	693,071	599,204	603,300	651,654	639,332
Coshocton	412,558	247,734	299,789	276,456	290,434	251,767	214,135	192,631	285,635	231,328
Crawford	1,096,031	826,228	1,076,557	799,150	876,416	819,421	809,864	703,046	769,408	1,002,133
Cuyahoga	540,886	608,013	631,881	531,592	584,538	642,896	573,862	459,889	560,811	633,754
Darke	1,935,936	650,324	916,847	658,932	154,970	470,379	567,625	628,447	690,847	607,100
Defiance	1,099,256	637,513	1,002,549	637,344	746,344	957,135	630,863	468,003	417,897	543,670
Delaware	467,325	376,035	496,053	320,897	314,030	344,521	356,958	320,801	522,712	377,566
Erie	620,372	486,931	501,151	479,250	564,030	473,071	464,848	463,806	418,318	451,054
Fairfield	241,781	157,227	216,661	186,790	244,771	85,406	77,676	78,083	227,403	104,263
Fayette	583,540	98,763	171,756	124,904	193,449	17,685	30,060	46,186	156,590	45,668
Franklin	690,448	421,819	545,233	347,498	439,224	226,929	265,306	306,703	462,816	217,992
Fulton	1,137,696	858,426	1,121,673	778,510	981,196	1,131,937	770,624	563,658	632,212	804,581
Gallia	52,780	38,132	48,793	34,583	24,997	13,971	23,854	41,727	41,292	23,279
Geauga	421,081	513,083	544,777	419,073	530,673	528,497	451,831	423,622	526,633	446,775
Greene	487,888	146,099	295,258	174,826	322,131	76,022	107,115	139,219	282,940	193,468
Guernsey	202,027	118,181	156,327	158,590	140,289	143,307	132,193	137,928	174,673	116,344
Hamilton	116,309	177,195	164,841	73,784	105,361	46,943	45,988	79,636	194,096	147,535
Hancock	1,027,963	418,634	600,466	459,071	652,224	376,222	370,191	352,392	445,754	493,191
Hardin	949,606	485,710	525,958	565,940	512,362	271,438	309,389	329,230	492,936	417,137
Harrison	264,836	161,366	215,798	189,509	183,646	189,021	165,262	170,958	195,070	135,440
Henry	1,455,283	694,690	897,276	458,309	662,557	948,238	416,538	352,776	403,213	417,420
Highland	190,146	83,275	156,285	108,162	64,149	21,211	14,254	36,029	86,294	43,017
Hocking	64,811	39,939	66,734	44,254	24,744	17,533	18,303	24,507	58,315	23,915

Holmes	1,014,122	572.156	619,259	508,332	587,906	571,119	416,464	464,954	510,123	507,230
Huron	1,203,369	939,569	1,125,441	869,506	1,150,706	947,383	937,284	818,368	875,667	989,998
Jackson	28,658	21,715	39,589	21,950	12,230	4,952	8,053	20,342	40,613	20,71
Jefferson	350,573	282,340	351,516	252,292	338,928	356,377	279,982	300,346	307,222	223,88
Knox	323,874	345,606	382,102	346,639	235,810	331,068	309,216	331,494	379,608	337,95
Lake	326,526	290,652	270,930	236,758	281,204	253,776	214,113	282,175	239,411	294,598
Lawrence	67,614	39,139	42,477	43,720	43,196	27,183	34,878	50,858	43,048	38,070
Licking	492,783	348,527	431,197	296,421	257,580	255,039	312,913	348,096	673,217	303,111
Logan	1,181,388	402,906	535,263	310,092	643,090	176,908	231,957	288,160	401,431	188,975
Lorain	816,949	824,596	878,062	731,616	854,758	806,837	807,259	675,658	903,089	813,945
Lucas	683,699	508,044	582,973	449,543	524,945	641,083	466,114	405,204	393,298	447,597
Madison	1,411,398	776,239	819,462	431,119	494,663	191,784	148,780	202,909	214,235	166,287
Mahoning	586,369	585,144	602,902	416,711	728,821	589,750	507,861	542,087	292,377	565,506
Marion	1,267,793	599,228	916,469	567,606	784,047	496,708	588,409	404,892	636,250	528,323
Medina	829,508	860,545	976,539	766,274	867,890	833,985	804,636	777,848	760,348	715,886
Meigs	61,965	36,557	54,241	41,963	36,015	20,364	46,732	54,595	69,601	30,043
Mercer	1,164,130	659,469	966,559	747,896	1,330,342	580,336	629,134	605,476	703,071	664.059
Miami	1,261,234	602,547	881,127	525,294	954,128	369,129	441,606	522,361	553,379	468,301
Monroe	186,766	139,024	163,794	129,511	129,334	111,545	102,733	122,154	141,484	84,837
Montgomery	810,016	286,054	520,869	380,074	548,282	247,374	313,473	345,303	463,801	409,472
Morgan	105,393	55,393	70,789	56,807	53,987	37,230	42,942	44,898	77,174	75,885
Morrow	672,992	530.865	731,101	537,373	508,643	577,876	541,713	440,993	540,871	484,332
Muskingum	256,102	148,818	198,887	172,403	153,423	112,326	95,445	117,933	202,956	133,479
Noble	108,506	64,919	83,075	69,966	62,481	49,463	59,972	74,511	101,641	79.965
Ottawa	453,961	421,276	411,975	372,055	338,945	123,448	278.361	287,828	310.856	369,847
Paulding	1,231,422	776,817	970,446	437,028	593,142	882,971	421,621	290,712	263,481	330,957
Perry	96,994	66,394	86,554	66,430	46,010	20,190	24.595	34,665	68,025	45,226
Pickaway	320,093	66,498	89,703	68,674	141,386	15,111	18,707	38,522	155,121	41,041
Pike	98,207	54,473	63,303	47,613	20,672	6,503	8,641	32,709	47,597	21,904
Portage	688,278	793,471	876,080	603.477	679.305	759,979	683,584	702,875	810.075	628.989
Preble	670,320	257,269	341,292	324,380	718,039	181,531	228,781	318,380	369.609	407,764
Putnam	1,029,373	407,647	523,505	268,748	575,788	241,478	203,548	218,534	218.941	282.320
Richland	1,144,392	768,134	957,873	815,646	789,618	833,789	797,594	787,202	758.198	878,506
Ross	114,947	43,009	66,054	47,381	35,242	7,708	15,571	24,821	121,517	41,976
Sandusky	1,127,573	766,800	813,543	696,100	1,098,097	589,622	568,947	568,987	580,198	694.488
Scioto	84,334	47,880	81,110	72,895	59,020	30,801	38,621	65,546	98,342	59.984
Seneca	1,332,190	757,267	908,007	711,928	1,013,149	624,614	713,074	592,493	778,999	714.182
Shelby	1,348,198	734,809	1,096,416	771,842	1,460,241	500,374	638,123	565,007	621,071	589.958
Stark	1,261,165	1,092,962	1,377,799	940,832	1,179,203	1,121,658	716,302	701,253	759.733	722,404
Summit	639,708	672,890	743,263	603,028	668,969	716,708	716,302	701,253	759.733	722.404
Trumbull	547,910	783,715	846,837	666,050	896,327	748,819	709,482	754,977	940.600	930.538
Tuscarawas	940,594	472,234	572,315	459,194	602,907	568,044	463,146	462,495	554.621	541.737
Union	892,890	413,370	540,240	338,309	349,126	229,269	295,708	331,050	503.789	254.670
Van Wert	1,093,015	581,858	719,871	326,147	644,458	532,503	393,048	429,662	334,965	517.944
Vinton	37,190	27,902	44,130	31,502	19,433	9,477	16,559	22,548	40,745	23.460
Warren	404,563	204,297	382,713	245,340	275,215	20,397	135,028	190.654	399.821	203.010
Washington	170,838	122,943	162,785	136,851	145,956	115,701	146,224	154,905	208.637	110.668
Wayne	1,349,213	1,244,396	1,327,916	1,010,425	1,082,945	1,128,861	926.081	1,029.760	1,030.683	1,015.500
Williams	1,048,271	796.137	1,166,895	786,419	951,218	933,170	820,227	664.182	578,117	727.717
Wood	2,289,932	1,318,483	1,507,749	1,174,448	1,486,936	1,404,129	1,101,267	1,039,803	825.611	1,324.520
Wyandot	927,655	465,312	602,003	446,181	494,332	369,141	379,102	300.578	510.549	446.320
Total product	58,312,740	37,305,993	46,789,843	33,936,143	43,193,577	33,296,912	30,694,432	30,563,033	36,027,464	34,013,739
Total area	1,467,052	1,213,228	1,188,947	1,053,876	1,251,248	969,565	976,902	1,052,605	1,262,906	1,095,142

Average area for ten years, **1,153,147 acres.**
Average product for ten years, 38,513,388 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF CORN IN OHIO FOR TEN YEARS.

Counties.	Bushels (Shelled.)									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	833,485	659,528	906,846	598,677	908,020	902,171	1,013,713	937,766	1,156,639	646,711
Allen	1,019,187	1,062,426	1,528,880	1,006,162	1,961,497	1,257,240	1,209,899	1,357,388	1,538,141	1,314,789
Ashland	539,908	889,276	1,019,692	726,991	1,066,801	836,308	968,280	831,350	968,200	911,977
Ashtabula	51,399	389,393	249,949	641,577	586,148	454,599	690,001	448,283	558,988	618,204
Athens	386,926	228,453	493,755	282,080	434,728	449,755	515,325	477,430	515,263	498,507
Auglaize	1,482,575	1,647,150	1,994,731	1,237,374	2,454,749	1,574,265	1,554,545	1,403,978	2,012,775	1,347,947
Belmont	763,644	524,364	876,340	790,647	921,245	895,204	1,064,474	844,974	1,123,655	824,700
Brown	1,173,390	965,403	1,284,480	586,177	1,118,755	1,214,197	1,249,513	1,616,065	1,413,209	1,020,024
Butler	1,987,922	1,680,633	2,193,663	1,128,110	2,393,974	2,101,482	2,069,862	1,942,276	2,855,940	1,572,733
Carroll	394,549	389,010	459,200	496,543	566,239	391,093	580,806	439,523	612,753	496,521
Champaign	2,334,679	2,081,850	2,648,546	1,722,881	3,088,845	2,225,267	2,448,256	1,858,336	2,748,826	1,720,523
Clark	2,195,070	1,418,098	2,361,166	1,631,877	2,716,325	2,035,440	2,118,612	2,026,852	2,419,539	1,621,740
Clermont	776,335	1,188,543	1,054,348	542,678	1,161,680	1,111,813	1,042,754	1,000,661	1,094,808	1,189,538
Clinton	2,375,597	1,443,153	2,692,420	1,645,316	3,275,073	2,555,251	2,453,512	2,280,104	2,902,243	2,270,012
Columbiana	427,472	655,691	630,013	633,730	729,665	601,318	800,515	536,015	797,793	805,417
Coshocton	882,280	578,336	983,068	780,966	933,213	773,188	1,119,201	790,637	1,026,726	1,047,137
Crawford	1,105,184	1,427,556	1,428,498	1,133,960	1,529,246	1,345,669	151,134	1,106,100	1,375,642	1,514,750
Cuyahoga	128,609	310,128	229,458	351,938	429,792	373,953	468,740	329,851	322,106	402,182
Darke	3,441,497	3,553,020	4,192,821	2,744,410	5,999,152	3,208,023	3,424,966	3,102,697	4,238,209	2,609,091
Defiance	1,312,452	1,114,482	1,199,386	785,227	1,217,657	1,619,358	1,052,589	916,558	1,235,429	817,674
Delaware	1,141,545	1,397,833	1,718,267	966,755	1,616,187	1,540,143	1,522,213	1,449,185	1,757,653	1,056,614
Erie	453,398	489,991	548,596	514,501	730,722	649,002	691,450	572,969	108,363	566,006
Fairfield	2,089,842	2,100,073	2,041,560	2,279,694	2,105,011	2,199,100	2,012,881	1,688,568	2,241,576	1,679,819
Fayette	2,174,930	1,439,774	2,561,635	2,024,855	3,172,320	2,515,635	2,296,045	2,570,879	2,937,730	1,819,871
Franklin	2,251 999	1,722,803	2,848,567	1,338,557	2,891,623	2,305,290	2,332,185	2,523,647	3,254,039	2,280,794
Fulton	1,377,766	1,353,100	1,207,670	1,227,055	1,455,998	1,254,455	1,308,561	920,257	1,230,188	946 941
Gallia	446,887	387,901	579,839	336,602	557,231	640,882	675,596	616,806	681,697	519,875
Geauga	49,316	259,773	200,538	334,807	390,329	328,128	417,657	330,419	357,722	319,214
Greene	2,391,445	1,723,825	2,736,452	1,775,441	2,756,056	2,754,575	2,583,818	2,330,046	3,535,217	2,173,452
Guernsey	526,788	358,505	553,114	663,010	543,774	606,624	828,388	600,491	780,770	685,910
Hamilton	548,113	578,555	776,821	403,885	711,558	551,100	642,984	725,646	868,988	553,061
Hancock	1,607,571	1,897,955	2,463,238	1,728,507	2,531,303	2,201,211	1,891,306	1,736,131	2,288,577	2,270,751
Hardin	1,162,337	1,186,468	2,048,464	1,420,324	2,138,105	1,565,667	1,440,005	1,368,508	2,055,035	1,274,403
Harrison	360,309	279,852	511,120	480,768	505,580	419,352	646,208	467,615	626,528	566,971
Henry	2,059,519	2,283,889	2,212,583	1,898,418	2,685,462	2,994,496	2,217,175	2,038,971	2,398,694	1,964,750
Highland	1,783,295	1,066,210	2,016,476	1,214,651	1,793,370	1,763,498	1,661,306	1,691,519	2,132,133	1,427,075
Hocking	359,615	309,986	418,146	307,210	469,461	480,428	519,824	445,936	520,207	417,142

Holmes	733,157	746,882	906,335	776,845	901,928	663,754	860,545	705,329	852,011	695,059
Huron	852,582	977,955	1,034,361	1,012,855	1,346,616	1,266,748	1,223,828	894,766	1,080,982	1,061,286
Jackson	261,851	234,165	333,670	311,456	317,238	287,640	432,326	347,166	432,923	278,399
Jefferson	377,123	348,449	467,079	426,500	469,437	469,059	638,230	475,869	649,499	535,160
Knox	81,512	968,379	1,178,641	1,133,055	1,105,868	1,055,860	1,399,337	1,034,932	1,420,425	1,108,078
Lake	102,975	167,492	126,553	225,459	277,266	238,540	246,321	250,227	227,714	285,149
Lawrence	296,059	244,571	381,178	334,518	126,642	367,082	466,115	444,250	426,023	370,443
Licking	1,826,822	1,521,885	1,958,426	1,526,575	1,736,046	1,981,628	2,167,822	1,619,161	661,094	1,651,757
Logan	1,765,760	1,444,022	2,193,723	1,223,351	2,421,850	1,753,369	1,713,214	1,606,952	2,030,260	1,237,751
Lorain	436,495	607,907	566,510	597,416	772,542	662,442	794,862	568,355	686,801	651,603
Lucas	1,057,301	855,166	842,660	814,483	1,014,390	916,422	950,242	696,837	880,480	699,385
Madison	2,626,487	2,197,225	3,258,880	2,324,405	3,633,960	2,824,597	2,871,614	2,922,451	3,916,307	2,812,326
Mahoning	212,568	444,144	416,683	451,832	682,243	547,222	644,468	426,137	2,434,464	476,950
Marion	1,631,619	1,455,135	2,016,466	1,229,197	2,209,384	1,794,112	1,825,765	1,451,218	2,080,057	1,834,453
Medina	435,209	717,854	719,753	718,489	895,151	692,320	830,655	677,588	817,701	687,115
Meigs	319,618	258,394	489,013	225,928	396,882	561,612	559,523	425,885	509,077	441,688
Mercer	1,370,035	1,644,644	2,036,252	1,356,306	2,468,881	1,686,532	1,566,649	1,416,796	1,989,803	1,533,879
Miami	2,149,851	1,902,533	2,742,883	1,761,650	2,888,779	2,063,832	2,112,438	1,907,044	2,705,212	1,440,979
Monroe	490,920	390,670	649,208	532,871	588,384	598,603	634,108	537,453	596,458	517,222
Montgomery	1,908,834	1,118,564	2,045,440	1,273,938	2,069,967	1,680,543	1,918,425	1,658,414	2,642,318	1,442,263
Morgan	496,704	391,757	590,292	467,950	595,658	627,117	589,811	578,362	662,452	592,137
Morrow	770,324	849,314	982,656	771,235	1,102,462	1,109,115	1,239,920	856,196	1,007,102	1,004,100
Muskingum	1,072,461	669,356	1,022,037	841,998	1,073,900	1,049,738	1,175,889	945,800	1,268,634	1,091,455
Noble	508,599	414,051	637,844	611,943	566,642	628,768	572,268	613,915	688,186	620,916
Ottawa	733,524	878,627	706,809	633,927	819,250	815,567	683,287	813,510	921,456	853,920
Paulding	2,548,787	2,016,302	2,361,586	1,162,070	1,925,335	2,477,194	1,673,118	1,110,984	1,581,195	1,473,627
Perry	611,585	539,028	617,362	473,038	651,005	662,910	668,205	623,430	1,246,476	587,840
Pickaway	2,976,494	2,254,422	3,157,955	2,288,445	3,431,553	2,949,668	2,300,028	2,615,699	4,020,015	2,541,930
Pike	797,758	521,807	785,848	848,649	796,391	623,679	830,235	737,540	1,030,174	590,062
Portage	115,182	489,381	388,212	497,464	595,627	445,843	646,067	448,948	637,373	563,746
Preble	2,064,821	1,560,045	2,502,491	1,537,250	2,793,717	2,116,052	2,020,943	1,884,200	2,616,078	1,673,061
Putnam	1,969,480	2,481,147	3,023,122	1,829,837	3,266,499	2,601,494	2,067,899	2,433,846	2,398,700	2,482,136
Richland	854,279	945,983	1,308,236	1,033,994	1,253,450	1,192,010	1,197,431	977,172	1,089,980	1,092,156
Ross	2,398,909	1,732,452	2,304,574	3,114,693	2,449,357	2,498,190	2,668,608	2,218,451	3,160,790	2,034,469
Sandusky	1,202,653	1,373,728	1,474,840	1,465,867	2,056,915	1,451,885	1,665,140	1,497,865	1,496,354	1,562,198
Scioto	667,968	525,367	855,810	640,529	558,771	774,136	826,133	715,199	644,455	716,036
Seneca	1,673,541	1,657,142	1,801,515	1,682,183	2,228,435	1,731,338	1,856,587	1,420,813	1,891,697	1,806,580
Shelby	1,710,312	1,608,075	2,297,897	1,397,200	2,783,137	1,636,396	1,714,186	1,332,986	2,206,410	1,288,781
Stark	930,229	1,114,138	1,309,470	1,102,941	1,325,034	1,076,804	1,378,993	1,125,604	1,434,023	1,425,323
Summit	363,512	566,433	571,458	651,123	743,137	580,650	809,622	614,926	791,030	728,837
Trumbull	70,335	387,613	303,725	544,999	593,774	462,275	593,526	614,520	640,269	603,299
Tuscarawas	647,721	560,288	781,360	721,376	842,961	627,542	898,526	684,775	864,204	891,503
Union	1,720,799	1,564,359	2,229,616	1,461,727	2,124,346	1,765,009	1,735,316	1,861,126	2,260,187	1,438,152
Van Wert	1,727,400	1,623,894	2,579,998	1,327,475	2,498,029	2,193,660	1,609,615	1,503,679	2,046,000	2,005,548
Vinton	212,017	180,093	266,123	234,336	327,684	276,072	343,121	300,466	364,855	315,840
Warren	1,602,924	1,235,005	1,636,491	1,165,074	1,998,030	1,934,531	1,859,266	1,745,400	3,749,484	1,544,712
Washington	554,409	451,393	727,312	484,950	724,457	722,987	799,270	759,702	701,817	661,374
Wayne	1,005,843	1,326,645	1,712,987	1,146,277	1,587,610	1,428,753	1,581,285	1,346,455	1,533,031	1,458,537
Williams	1,140,030	1,295,270	1,101,575	986,975	1,171,857	1,118,563	1,043,677	776,751	1,045,812	745,642
Wood	2,782,206	2,924,860	2,681,169	3,431,449	3,442,570	3,178,841	2,481,132	2,503,655	2,861,704	2,871,727
Wyandot	1,266,134	1,393,352	1,720,919	1,162,347	1,593,714	1,574,785	1,441,258	1,113,728	1,564,721	1,538,340
Total product	100,529,653	92,820,349	122,675,349	92,368,811	143,161,675	115,138,669	114,214,148	103,004,970	134,796,274	102,447,445
Total area	3,066,756	2,945,473	3,160,066	3,079,376	3,361,166	3,025,666	3,057,712	2,999,826	3,230,331	3,037,014

Average area for ten years, 3,096.338 acres.
Average product for ten years, 112,115,734 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF MEADOWS IN OHIO FOR TEN YEARS.

Counties.	Tons of Hay.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	12,855	14,144	11,134	14,221	12,124	10,767	12,169	9,486	9,155	9,343
Allen	26,122	16,948	9,741	17,155	22,709	20,394	26,105	21,497	22,519	11,830
Ashland	37,957	32,308	25,804	20,529	35,550	26,026	32,279	21,597	27,655	17,352
Ashtabula	71,758	66,712	64,312	64,755	55,452	57,306	56,763	50,451	47,646	39,327
Athens	21,493	17,092	16,332	22,759	21,333	17,576	22,122	17,941	13,149	7,010
Auglaize	17,703	11,743	7,490	13,157	15,121	14,891	16,979	16,442	16,117	9,803
Belmont	44,307	39,909	27,668	36,887	40,264	37,056	38,728	28,876	27,803	14,597
Brown	16,559	15,709	11,939	16,583	13,724	14,475	13,710	13,450	12,411	12,652
Butler	16,509	15,354	12,385	15,820	14,641	14,131	15,952	14,096	11,287	21,107
Carroll	33,099	31,885	28,049	35,787	31,184	28,668	29,316	22,602	23,305	12,547
Champaign	14,363	11,743	7,936	12,289	12,583	8,029	14,081	15,566	15,304	7,452
Clark	24,060	24,548	11,926	21,024	16,031	11,951	17,205	18,210	16,840	12,345
Clermont	19,217	17,351	13,433	16,811	16,576	15,535	17,214	14,145	11,332	18,107
Clinton	20,561	19,214	11,182	14,496	15,463	13,342	16,359	11,792	12,407	10,590
Columbiana	57,906	48,999	42,128	117,073	42,608	41,881	46,204	38,475	39,786	15,632
Coshocton	46,788	38,141	31,272	40,894	34,946	27,247	37,051	26,182	26,557	13,152
Crawford	37,322	34,097	21,036	19,814	29,806	31,651	34,516	31,545	30,891	20,732
Cuyahoga	34,051	35,552	35,883	38,673	26,719	29,264	36,317	34,363	31,979	23,149
Darke	20,326	13,000	8,248	12,763	16,295	14,152	19,123	19,420	17,323	9,264
Defiance	27,827	33,935	19,772	22,941	23,065	19,141	21,201	18,613	21,487	13,667
Delaware	47,787	42,161	33,309	42,287	23,883	27,562	38,424	35,558	33,590	33,422
Erie	15,004	9,807	8,386	9,288	11,783	12,301	14,449	11,532	12,919	9,634
Fairfield	54,053	39,809	24,097	40,943	29,509	22,554	29,368	17,466	24,092	16,008
Fayette	13,955	10,700	7,148	44,465	9,745	9,859	12,188	14,149	8,442	4,103
Franklin	43,692	39,045	25,071	12,880	28,419	27,882	31,100	30,987	29,686	20,002
Fulton	27,964	17,387	15,089	18,860	18,058	18,786	24,375	16,721	25,979	12,892
Gallia	15,415	11,365	9,302	11,522	12,336	11,380	12,848	13,312	8,985	7,516
Geauga	37,678	32,523	36,380	35,551	28,431	27,987	30,826	24,807	26,852	12,765
Greene	19,937	15,983	10,836	16,960	15,227	12,491	16,083	17,542	33,708	13,926
Guernsey	42,946	41,393	28,279	44,098	36,210	32,677	36,762	28,969	25,704	14,347
Hamilton	12,585	11,974	11,716	10,336	12,744	13,227	13,351	14,468	11,040	14,017
Hancock	40,158	27,845	12,099	22,951	28,655	31,597	33,407	29,540	36,044	25,047
Hardin	26,175	23,147	10,090	17,161	19,158	24,276	48,355	24,937	32,690	12,469
Harrison	39,988	31,979	30,947	36,817	33,208	34,741	30,569	28,295	26,225	12,945
Henry	21,264	16,414	15,431	17,585	16,538	16,339	15,874	12,077	17,182	10,577
Highland	26,367	20,644	15,355	23,777	18,363	20,724	21,280	15,542	14,799	14,278
Hocking	15,622	14,034	10,903	33,915	11,638	11,117	12,345	8,473	10,131	6,444

Holmes	26,807	27,708	23,056	29,813	28,469	19.237	27,125	20,827	19,911	14,668
Huron	47,866	42,546	27,458	28,502	31,113	34,863	40,775	33,353	30.932	26,574
Jackson	13,702	13,876	9,035	11,181	11,346	10,859	12,029	13,140	8,625	6,193
Jefferson	31,953	31,841	25,496	32.825	31,168	28,448	32,454	26,124	25,330	10,853
Knox	45,515	45,896	29,673	37,816	26,920	28,987	35,557	25,559	27,973	13,787
Lake	18,105	17,390	14,836	18,241	12,647	12,027	12,716	15,412	15.900	8,524
Lawrence	5,435	4,533	7,601	5,034	4,686	4,511	4,813	5,113	3,834	4,081
Licking	67,790	74,794	55.809	70.700	45,663	42,240	55,286	53,755	51,919	27,474
Logan	20,902	18,964	10,321	16,422	17,230	16,241	21,731	18,952	22,037	10,313
Lorain	57,623	50,740	47,155	42,217	41,010	44,487	49,466	37,790	36.527	33,482
Lucas	17,744	15,721	11,841	13,600	12,828	11,514	14,296	13.968	14,437	8,552
Madison	15,774	17,883	8,140	17.207	9,766	8,592	14,568	16,809	12,669	8,316
Mahoning	50,582	45,502	40,502	36,330	31,246	24,758	41,087	20,601	26,355	14,264
Marion	24,731	22,578	11,126	16,096	17,411	20,827	26,329	21,276	28.216	12,580
Medina	40,161	39,959	33,248	27,723	27,525	28,514	38.250	25,434	30,007	18,969
Meigs	18,312	15,215	13,476	17.147	15,847	10.242	16,659	14,717	10,720	5,338
Mercer	21,541	14,104	8,884	14,646	19.622	18,928	20,586	20,251	19,078	11,430
Miami	11,416	9,402	6,919	7,573	9,141	7,556	19,939	11,442	12.652	6,981
Monroe	30.698	28,280	16,937	28,182	29,126	31,154	26,592	18,950	12,724	9,201
Montgomery	21,729	17,365	10,425	17.651	13,859	14,435	16,307	15,132	13,257	12,625
Morgan	29,706	26.218	20,763	31,152	28,270	22,316	26,956	19,905	19.633	12,322
Morrow	41,284	36,052	23,606	29,538	21,759	26,962	41,133	31,227	29.591	18.626
Muskingum	50,750	44,415	37,703	53,174	46,013	34,990	44,901	32,823	35,747	18.242
Noble	36,160	31,671	22,276	30.508	26,821	21,708	26,720	23,465	16,370	12,326
Ottawa	19,664	21,014	14.824	16,062	12,817	14,697	16,387	11,232	11,107	10,006
Paulding	26,291	21,523	16.529	18,871	23,224	14,684	17,095	12,360½	12.104	7,345
Perry	29,351	26,678	19,557	31,061	24,870	18.210	22,950	17,460	18,788	12,289
Pickaway	14,852	12,987	6,814	17,357	12,635	9,983	12,640	10,807	15,033	8.702
Pike	8,190	9,510	4,463	6,074	5.215	5,306	5,054	3,615	3,378	4,417
Portage	43,434	37,872	39,029	36,363	27,044	33,559	32.971	21,124	21.999	11,275
Preble	8.188	7,403	4,875	7,899	7,601	7,581	9,917	10,509	7,482	8,347
Putnam	29,999	20,855	15,761	17.705	22,847	19,613	18,163	18,105	20,193	12,648
Richland	36,966	33,675	27,641	30,086	28,906	26,464	36,086	27,010	27,976	19,070
Ross	14,757	12,266	8,187	14,795	13,190	10,354	12,162	11,204	9.288	5,318
Sandusky	25.874	27,116	17,834	23,347	20,848	18,415	22,540	20,585	23,475	18,422
Scioto	12,009	9,190	9,125	9.886	8,891	9,649	9,046	9,310	8,592	6,872
Seneca	40,812	28,506	15,122	21.317	25,064	29,643	29,520	23,836	24.938	21,752
Shelby	14,731	9,084	6,750	9,602	11,298	10,392	14,995	11,252	15.116	7,692
Stark	64,724	52,959	52,701	55,101	42,472	51,927	56,360	45,563	50.630	25,341
Summit	34,109	31,391	32,178	33,080	25,377	29,509	31,020	26,815	24,144	10,848
Trumbull	73,132	63,919	61,764	60,832	55,462	61,407	61,081	43,870	35,496	24,715
Tuscarawas	48,864	45,015	54,750	49,832	47,264	55,817	46,155	35,951	37.129	23,590
Union	28,938	27,293	13,084	22,183	16,003	19,436	28,344	25,456	19,104	13,181
Van Wert	37,455	29,386	22,807	30,839	28,116	24,716	28,592	25,956	25,155	10,582
Vinton	12,179	12,939	9,049	11,012	10,271	8,751	11,099	11,513	7,686	4,478
Warren	21,216	19,465	13,229	17,383	16,586	16,120	16,129	14,488	12.927	17,248
Washington	31,696	29,683	25,516	22,045	33,392	25,709	34,991	24,427	23,722	14,971
Wayne	57,629	40,724	42,571	49.134	41,313	41,649	47,541	32,591	37,849	16,858
Williams	37,944	33,541	30,178	25,230	20,518	28,843	30,958	28,586	34,187	21,769
Wood	34,775	34,181	24,950	28,272	23,588	23,121	33,997	28,847	30.465	18,758
Wyandot	30,154	35,450	15,180	16,926	20,583	23,731	26,922	26,371½	29,925	14,080
Total product	2,685,592	2,370,842	1,844,892	2,339,399	2,034,980	1,972,659	2,323,978	1,903.963	1,925,389	1,236,315
Total area	2,290,354	1,975,387	1,658,397	1,960,476	2,072,781	1,776,075	2,001,111	1,661,038	1,941,274	2,037,931

Average area for ten years, 1,937,482 acres.
Average product for ten years, 2,063,801 tons.

COMPARATIVE TABLE SHOWING PRODUCTION OF CLOVER IN OHIO FOR TEN YEARS.

Counties.	Tons of Hay.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	3.241	5.350	5.399	752	1.609	4.963	2.731	7,425	1.160	1.438
Allen	12,292	22.222	21.341	26,026	798	15,684	8,868	18,057	350	1.773
Ashland	12,102	19.121	21.039	38,940	10.692	16.998	13.340	32.459	9.795	6.002
Ashtabula	1,095	1.747	2.195	3.760	1.839	2.785	3,384	6.780	4.041	1.314
Athens	1,241	1.930	2,813	223	497	2.253	880	2.450	400	296
Auglaize	16,756	22.098	16,683	16,873	934	12,062	8.468	15.585	1.967	1.512
Belmont	1.368	1.807	5.142	413	960	6.372	1.899	12.919	2,073	694
Brown	1.997	2.623	6.356	778	1.941	1.432	1.041	2.351	653	719
Butler	14,389	18.915	15.740	12.342	10,382	12.847	9.859	17.278	2.057	5.629
Carroll	1.208	894	2.555	886	426	3.984	2.575	8.457	826	509
Champaign	14.246	18,031	18,297	16,957	942	20.244	13.762	24.238	1,813	5.068
Clark	9.449	9.320	14,783	12,557	1.662	12,211	10.553	21,675	2.337	5.622
Clermont	3.443	5.161	4.174	2.041	2,023	3,038	2.326	4.333	905	2.022
Clinton	5.770	9.152	8.253	6,073	4.385	8.415	5.249	18.334	3,251	4.109
Columbiana	5,101	3.842	7.737	7.439	4.543	8.931	2.163	14.857	3.337	3.326
Coshocton	3,823	4,269	8,791	3.089	1,773	8,791	3.122	10.478	2.727	809
Crawford	14,340	19.273	22,461	33.516	6.289	14.857	11,323	22.271	5.346	7.100
Cuyahoga	1,088	2.178	2.472	4.291	1.858	3.432	1.549	4.419	2,626	2,341
Darke	31.721	35,011	30.979	33.101	2.982	26,603	21,540	30,699	1.194	4.426
Defiance	4,893	22,627	19.079	23.334	12,688	5,191	8.747	23.093	1.333	6,472
Delaware	8,336	10,700	18,875	12,607	1.757	10,641	4.947	21.587	3.003	3.683
Erie	3.638	7.827	7.571	11,061	3.633	5,985	4.837	10.397	2,046	3.867
Fairfied	12,848	13,776	17,644	13.880	7.566	16,816	7.879	22.390	4,205	7.183
Fayette	8.037	9.830	6.438	5.215	2.115	4.069	2,409	10,305	894	2,722
Franklin	8.868	9.221	12.555	8.401	3.466	9.538	5.124	19.196	3.211	5.756
Fulton	1,245	23.772	21,345	20.536	13.462	2.444	9.374	18,917	2,681	7.182
Gallia	1,053	2.339	2.303	237	578	1.823	1.127	2.892	952	514
Geauga	722	1.596	2.739	4.408	2.704	2,792	2.710	9.155	2.735	645
Greene	10,732	13.139	13.503	11.366	6.742	9.450	6.731	18.796	1.995	6.621
Guernsey	497	1.080	2.442	829	618	3.788	1.202	5.024	672	342
Hamilton	5.610	6.182	6.096	6,006	4.476	4.923	5.578	5.088	1.048	3.161
Hancock	17,881	27.826	34.324	33.270	2.807	14.161	19.003	32.576	1.923	3.211
Hardin	12,259	14.376	20.554	21.154	945	12,864	10.249	21.494	334	1,291
Harrison	549	1.581	1,685	393	645	2,648	2.682	5.878	1.219	315
Henry	4,945	20.669	15.233	14.558	9.884	2.697	9.331	17.744	1.935	6.326
Highland	6.795	11.038	7.723	3.015	3.238	5.372	3.071	13.825	883	1.811
Hocking	2,105	3.204	2,011	551	808	3.240	1.652	3.720	895	671

Holmes	8,663	8.303	1,038	9,200	4,145	10,093	4,179	15,490	12,084	3,946
Huron	14,947	19,801	22,549	37,265	13,131	15,607	10,359	26,941	7,175	7,878
Jackson	104	219	291	25	226	401	227	1,053	141	136
Jefferson	2,165	1,158	5,800	1,065	1,882	6,247	1,789	9,917	3,036	823
Knox	6,916	6,870	11,281	13,535	6,080	16,118	8,189	20,210	7,242	3,775
Lake	291	945	1,171	1,477	1,187	1,491	764	1,731	984	353
Lawrence	767	758	822	262	560	1,025	458	1,082	507	389
Licking	9,837	6,583	14,860	10,371	6,941	15,430	6,177	15,314	4,802	6,576
Logan	15,474	23.448	21,979	24,102	486	17,563	12,045	26,675	498	9,667
Lorain	5,858	8,872	10,598	16,911	7,286	6,984	3,856	14,396	4,689	4,343
Lucas	946	5,236	6,021	7,490	5,450	1,713	5,250	10,200	2,081	3,554
Madison	11,880	12,827	8,912	8,213	1,891	9,224	4,812	5,220	2,618	4,065
Mahoning	3,037	4.114	8,250	6,966	5,337	9,144	4,404	19,323	3,153	2,292
Marion	14,062	15.339	18,968	22,019	2,217	10,915	9,745	20,352	3,614	4,214
Medina	11,856	23,684	16,297	26,006	8,475	15,203	8,723	23,509	5,316	6,218
Meigs	1,035	2,934	3,237	356	892	2,181	1,067	3,555	595	363
Mercer	23,533	25.956	22,965	24,010	1,741	16,166	7,502	14,941	757	960
Miami	16,296	14,888	14,156	18,484	2,827	12,090	10,766	18,894	941	1,665
Monroe	487	583	1,663	142	203	3,559	634	6,285	279	64
Montgomery	14,984	15,490	14,411	13,631	4,932	14,978	12,192	22,432	2,041	4,194
Morgan	2,064	2,709	5,311	433	803	5,178	1.832	8,828	855	776
Morrow	11,247	15,360	24,695	25,483	4,586	13,825	6,063	21,713	8,205	8,343
Muskingum	2,552	3,792	7,838	1,787	1,846	6,696	2,712	9,283	2,617	1,050
Noble	881	1,103	3,039	301	287	2,140	1.081	5,352	285	384
Ottawa	4,296	7,798	10,639	13,641	5,308	2,643	5,601	13.286	2,186	3,017
Paulding	5,548	16,610	8,540	13,308	4,311	1,773	3,632	7,463	486	1.347
Perry	3,850	4,981	6,766	1,842	2,664	8,110	4,545	8.035	1,005	508
Pickaway	9,791	11,674	9,061	5,990	5,341	9,188	5,434	18,997	2.595	5,294
Pike	2,507	3,524	2,616	1,155	2,032	3,177	2,366	3.677	943	1.444
Portage	3,765	7,326	7,310	7,625	3,456	11,953	4,945	18,869	5.384	2,104
Preble	18,940	19,013	15,244	13,628	8,521	11,597	10,045	22.081	2,318	4,144
Putnam	9,007	22,766	19.201	22,962	2,115	6,697	13,955	19,852	955	2.654
Richland	18,172	18,737	19,239	28,122	8,576	19,387	13,068	34,156	12.199	9,499
Ross	6,728	11,009	8,022	2,822	3,922	7,649	4,793	11,076	2.135	3.558
Sandusky	4,046	13,251	14,255	19,473	7,582	10,064	10,877	21.271	6.562	7,517
Scioto	1,393	2,051	2,594	476	2,461	2,601	2,161	3,389	1,162	1,315
Seneca	20,729	30,897	35,139	41,593	10,960	20,941	21,565	38,937	3,438	7,473
Shelby	18,838	20,150	18,684	17,298	390	12,637	9.939	18.195	336	1,854
Stark	8,971	12,604	15,008	13,845	9,501	18,002	4,291	23.112	10,351	7.816
Summit	4,785	6,357	5,991	6,421	3,139	6,150	5,093	17,263	5,198	2.966
Trumbull	520	2,145	3,378	3,724	1,926	5,017	3.284	14.471	5,607	2,455
Tuscarawas	2,405	2,374	4,226	2,245	852	4,659	1,117	10.735	3,262	2,364
Union	15,548	19,098	23,326	25,790	698	13,979	5,075	19.541	1,763	3,115
Van Wert	8,627	21,072	18,465	19,600	3,900	6,722	8,881	13,215	585	860
Vinton	347	440	491	105	168	1,068	510	1,915	258	301
Warren	7,247	9,771	9,246	7,525	6,461	8,522	5.266	16,740	1,928	5.435
Washington	852	2,490	3,263	346	757	2,444	1,433	10,806	755	787
Wayne	19,400	21,882	21,405	23,939	13,592	21,305	15.416	41.009	17,941	11.188
Williams	3,659	22.713	19,588	28.827	19,685	4,744	10.550	21.358	3.588	7.463
Wood	5,999	18,957	17,070	20,979	9,877	7,463	8,382	19.424	3.277	6.289
Wyandot	15,462	18.131	23,457	27,771	5,725	20,418	13,686	17,888	2,185	4.150
Total product	666,997	972,580	1,026,948	1,051,464	361,980	749,225	552,021	1,336,599	252.507	299,377

Average product for ten years, 777,629 tons.

COMPARATIVE TABLE SHOWING PRODUCTION OF CLOVER SEED IN OHIO FOR TEN YEARS—Concluded.

Counties.	Bushels of Seed.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	2,259	2,535	7,805	82	966	3,768	793	10,004	1,585	1,729
Allen	2,175	5,825	7,831	12,824	200	4,930	1,045	18,999	361	629
Ashland	2,339	4,646	4,111	6,733	2,084	4,689	989	17,618¾	3,726	6,137
Ashtabula	....	68	138	416	38	77	41	2,268	285	60
Athens	28	62	174	....	....	191	21	191	35	31
Auglaize	6,943	9,397	14,560	7,673	370	7,296	1,340	13,702	255	1.143
Belmont	165	192	1.710	6	260	2.947	44	8,125	422	133
Brown	837	388	2,639	238	645	920	143	2,798	270	639
Butler	4,613	5,298	7,948	2,775	3,842	6,520	570	12.466	1,751	4,518
Carroll	256	495	1,318	151	66	773	993	6.038	624	643
Champaign	6,682	7,410	9,319	7,280	272	8,374	1,980	20.524	229	4,291
Clark	5,498	3,614	3,381	7,737	1,035	8.969	1,244	13,109	514	7,153
Clermont	451	453	1,371	214	219	890	39	1,578	179	578
Clinton	3,681	5,260	2,601	3,964	4,116	7,929	1,256	11,976	2.487	10,293
Columbiana	190	467	935	351	277	601	21	6.541	328	1,638
Coshocton	1,495	1,619	5,656	579	621	5.211	367	10,758	1,540	1,178
Crawford	3,843	8,300	6,031	13.000	2,144	5,105	1,958	20,605	3,459	15,820
Cuyahoga	....	60	21	305	3	112	15	1,344	58	60
Darke	11.834	12.936	18,783	14.504	930	17.105	4.788	27,478	700	5,236
Defiance	4,348	12,594	6,578	20,559	18,006	4.419	5,030	18,253	2.317	13,903
Delaware	1,811	2,772	4,941	3.800	417	2.428	220	8,133	678	3,200
Erie	479	1.564	1,461	2,528	811	1.434	506	9.414	1.488	3,227
Fairfield	7,204	6,725	11,544	6.410	7,507	17,068	1,211	19,902	1,289	12,844
Fayette	5,032	5,499	3,212	4.169	2.690	4.660	249	11,947	638	4.603
Franklin	4,508	3,480	4,310	4.001	2,507	7,845	419	16,952	602	8,078
Fulton	744	6,171	3,762	8,848	11,169	693	2,860	17.549	3,236	5,314
Gallia	40	165	279	16	101	224	122	817	372	84
Geauga	5	17	46	20	65	28	50	1,749	242	6
Greene	7,026	5,794	8,182	7,649	6,261	11,152	1,545	15,318	821	10.684
Guernsey	32	401	1,089	8	41	1.102	136	3,182	242	43
Hancock	1,344	1,712	1,537	1,481	1,364	1,145	230	2,154	194	1,398
Hamilton	5,248	8,528	11,887	18,733	2,127	4,489	3.584	27,923	2,526	2,936
Hardin	4,293	5,875	8,710	14,210	418	3,830	1,233	14,793	214	608
Harrison	71	143	804	87	217	1.270	2,627	5.829	716	143
Henry	3,588	12,006	7.711	12.830	10,794	2,161	4.831	20.098	2,663	8,588
Highland	9,240	6,636	10.308	1.609	3,592	6,753	545	18,006	1,548	5,174
Hocking	580	637	2,390	73	283	2,293	167	2,946	302	391

Holmes	2,927	3,322	5,612	3.171	1,520	5,806	1,112	12,337	6,177	5,832
Huron	2,537	5,253	4,049	12,333	4,781	3,586	1,910	22,836	3,076	9,986
Jackson	....	15	15	....	....	42	....	160	....	6
Jefferson	359	198	1,680	136	364	3,002	61	8,979	1,689	174
Knox	1,911	2,365	4,487	3,786	1,526	8,533	836	17,008	3,565	4,816
Lake	59	84	13	69	74	53	48	1,045	60	186
Lawrence	37	9	47	17	30	56	33	254	107	161
Licking	4,083	2,798	6,490	491	3,492	10,107	1,736	17,562	1,248	8,548
Logan	5,894	10,338	15,994	8,388	75	7,629	1,079	16,205	207	1,465
Lorain	89	885	798	2,591	579	494	197	6,741	638	1,083
Lucas	589	2,506	3,513	5,261	5,013	735	1,582	10,172	1,059	2,745
Madison	7,843	5,097	3,870	5,240	876	4,298	224	7,895	902	8,884
Mahoning	78	325	270	318	252	535	120	7,760	360	1,196
Marion	4,640	5,447	4,016	10,963	854	2,067	1,153	14,073	1,980	8,234
Medina	883	3,949	2,074	5,152	1,760	2,654	1,020	13,965	1,473	2,466
Meigs	138	70	313	77	37	183	37	444	36	48
Mercer	9,093	12,820	22,112	17,208	1,620	12,544	2,004	15.465	237	1,467
Miami	4,752	4,853	6,492	10,114	1,359	8,964	1,832	13,611	482	2,336
Monroe	139	145	1,170	24	42	1,911	82	5,574	33	7
Montgomery	6,234	3,899	6,022	6,572	1,310	767	1,547	16,286	888	3,589
Morgan	227	214	2,467	3	122	1,954	44	5,269	166	224
Morrow	1,970	3,879	3,218	7,956	1,263	1,666	561	17,085	2,350	13,370
Muskingum	154	448	3,989	80	387	2,677	114	6,170	587	427
Noble	55	128	1,534	15	32	740	44	2,451	28	152
Ottawa	748	1,365	1,160	4,081	2,786	683	840	8,748	1,635	1,502
Paulding	2,226	6,851	3,529	12,477	5,244	1,376	1,733	9,528½	513	2,047
Perry	2,026	1,603	5.430	819	1,785	6,110	980	9,933	967	1,326
Pickaway	8,590	8,228	7,570	4,401	6,991	12,256	1,025	15,320	1,579	7,735
Pike	2,433	1,380	3,303	137	1,476	2,265	300	3,590	588	1,278
Portage	414	1,188	677	833	257	1,844	176	10,644	945	478
Preble	5,961	7,579	7,747	3,560	3,147	6,640	1,255	14,593	1,307	6,076
Putnam	3,644	9,834	8,152	18,065	1,742	4,396	1,199	33,306	793	1,564
Richland	2,496	6,631	4,429	10,137	1,370	5,294	903	32,190	4,248	10,063
Ross	5,828	6,650	11.133	1,827	4,344	11,191	1,240	16,134	1.709	5,792
Sandusky	1,611	2,385	3,776	9,462	4,535	3,436	2,134	20,430	3,503	3,775
Scioto	252	410	1,152	32	264	738	334	1,691	565	700
Seneca	8,444	1,018	11,714	19,695	7,990	8,683	3.006	34.620	3,412	12,549
Shelby	10,635	10,948	17,545	9,181	96	6,342	1,377	17,033	288	1,588
Stark	1,017	2,438	2,517	1,821	839	3,553	153	12.609	1.866	6.084
Summit	240	1,223	635	932	149	597	121	7,440	655	721
Trumbull	17	122	101	60	39	229	38	4,408	511	64
Tuscarawas	805	726	3,084	504	297	2,534	76	9,105	1,654	3,547
Union	3,442	4,154	6,873	8,441	168	3.112	343	7,747	608	3,994
Van Wert	2,701	6,371	4,514	10,257	2,243	3.694	1,165	10,959	380	974
Vinton	79	86	361	8	258	330	9	552	19	212
Warren	1,706	2,064	3,512	1,141	1,128	4,952	277	9,560	896	5.981
Washington	118	243	1.849	....	60	721	44	6,597	171	308
Wayne	2,776	4,948	5,538	6,059	1,939	4,454	1,211	17.741	5,637	9,812
Williams	2,489	13,813	8,710	20,865	18,723	2,880	6,322	17,736	4.621	7.866
Wood	2,172	6,149	4,109	15,411	9,859	4,080	2,086	21.372	4.032	5.089
Wyandot	5,070	8.154	6,537	12,976	2,367	7,983	1,906	18,510	1,864	7,520
Total product	241,514	335,272	420,985	462,010	195,972	350,777	90,841	1,032.531	111,210	339,290

Average product for ten years, 358,004 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF IRISH POTATOES IN OHIO FOR TEN YEARS.

Counties.	Number of Bushels.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	28,591	18,814	23,524	14,688	22,263	13,701	18,323	14,339	41,607	11,109
Allen	63,492	43,545	79,705	35,050	54,096	51,029	44,459	23,188	96,243	67,093
Ashland	83,163	91,416	111,043	45,538	94,254	93,509	88,345	62,779	110,031	145,224
Ashtabula	340,247	207,207	204,586	447,711	403,128	236,789	400,765	244,397	387,018	613,805
Athens	46,527	19,399	33,860	19,397	21,779	33,665	32,445	25,399	63,707	30,593
Auglaize	67,492	71,778	107,039	54,071	66,881	45,914	45,952	25,304	145,105	83,388
Belmont	131,524	97,509	105,387	63,129	73,542	90,658	57,129	58,726	71,118	46,414
Brown	34,910	19,874	33,832	14,935	28,296	24,745	38,652	29,013	91,901	49,616
Butler	98,665	72,445	89,490	46,646	90,998	63,276	75,759	63,323	192,155	144,883
Carroll	64,487	42,132	51,167	35,962	61,582	63,610	58,008	54,195	112,880	89,341
Champaign	46,953	23,795	48,408	26,442	35,898	27,485	41,915	21,208	95,268	56,619
Clark	85,509	46,884	73,994	34,238	51,175	49,355	54,574	41,529	114,023	73,560
Clermont	65,475	54,149	75,403	37,657	78,492	69,744	56,034	62,456	124,647	81,737
Clinton	20,726	18,462	34,737	17,544	36,005	37,002	40,297	27,325	80,926	46,365
Columbiana	233,889	201,655	350,709	153,461	181,330	184,534	185,576	149,302	265,009	326,347
Coshocton	93,361	80,089	105,193	61,060	65,112	85,070	71,941	65,896	123,641	115,390
Crawford	143,150	138,725	162,589	91,745	126,445	109,739	123,988	73,451	134,246	228,213
Cuyahoga	605,801	641,831	467,748	704,867	603,554	551,647	743,559	543,867	492,300	770,201
Darke	143,318	85,186	139,244	59,939	120,118	90,034	100,463	59,242	251,336	149,572
Defiance	112,841	79,895	92,443	51,003	122,284	108,318	72,774	51,514	105,928	87,436
Delaware	45,978	34,150	53,105	27,010	23,905	31,619	33,351	20,734	49,222	48,121
Erie	355,010	275,980	263,407	304,553	384,356	263,408	312,730	248,383	313,530	326,118
Fairfield	110,019	98,258	104,047	45,467	67,997	84,054	71,746	54,052	137,465	74,280
Fayette	13,143	2,832	7,280	3,009	3,728	6,651	6,011	10,757	17,240	9,443
Franklin	271,212	155,867	125,206	88,660	68,865	68,766	82,204	75,691	119,545	86,497
Fulton	159,291	102,158	97,312	71,499	191,289	131,068	140,271	88,576	112,681	148,790
Gallia	26,372	15,399	21,493	7,668	17,691	15,205	13,015	19,898	34,002	31,163
Geagua	234,978	187,475	163,721	279,816	293,792	228,170	314,719	225,630	303,396	391,486
Greene	73,965	39,612	63,389	28,508	65,289	51,225	65,063	48,760	95,699	63,470
Guernsey	56,947	43,537	52,955	32,237	29,467	42,216	33,423	33,776	52,423	20,095
Hamilton	364,966	367,060	370,796	195,762	306,568	263,909	202,669	261,545	456,580	282,563
Hancock	81,234	90,660	121,361	84,053	113,617	88,728	80,959	52,139	117,174	116,110
Hardin	60,767	144,427	167,685	66,170	566,621	70,502	98,941	47,392	125,952	484,884
Harrison	31,105	19,206	24,353	18,143	29,484	32,977	27,647	30,256	31,475	35,286
Henry	103,683	70,510	84,677	44,727	111,838	100,657	87,715	64,213	93,829	85,559
Highland	29,984	12,636	23,470	11,245	22,616	20,043	21,862	17,477	59,551	35,152
Hocking	61,362	46,804	66,475	27,915	41,777	54,579	35,481	38,270	76,213	43,057

Holmes	72,586	66,979	84,198	51,699	68,163	79,833	82,123	54,493	114,280	103,516
Huron	125,736	133,374	123,676	114,198	183,712	96,619	170,493	92,544	168,806	246,954
Jackson	21,035	19.378	19,730	10,268	11,752	17,637	11,083	13,791	45,390	15,515
Jefferson	75,811	54,933	71,252	41,311	50,770	58,241	46,224	57,466	96,305	79,009
Knox	43,111	44,372	55,976	27,607	31,611	44,286	55,770	39,236	103,199	108,101
Lake	181,996	151,291	106,220	187,156	183,174	155,542	208,869	166,067	186,031	255,631
Lawrence	38,705	27,739	36,595	18,185	35,636	20,039	17,874	18,633	42,400	24,306
Licking	152,471	100,559	115,380	79,272	80,109	106,814	81,105	69,427	170,258	104,574
Logan	47,748	32,931	49,591	26,050	35,180	25,702	37,856	22,955	63,674	49,411
Lorain	222,569	214,945	198,969	219,306	273,390	186,144	234,986	178,502	210,742	270,800
Lucas	450,230	271,991	296,545	277,480	429,830	280,703	343,516	251,471	335,961	260,356
Madison	28,788	12,743	15,091	9,422	10,879	15,586	15,356	13,372	32,803	14,385
Mahoning	247,878	325,131	209,642	167,348	201,250	172,425	197,760	133,950	260,534	210,881
Marion	76,563	53,373	94,012	46,019	67,496	58,589	57,598	35,823	90,626	97,006
Medina	309,560	299,437	208,279	231,926	299,735	216,759	245,032	178,142	237,196	270,125
Meigs	65,263	44,730	64,462	25,532	60,850	42,305	54,839	52,378	92,278	55,884
Mercer	64,505	52.150	84,502	47,196	42,274	31,835	32,896	23,317	94,787	54,628
Miami	120,976	52.816	98,830	49,722	87,070	71,413	66,449	45,426	180,909	101,089
Monroe	150,200	114,965	139,953	93,139	129,325	121,005	85,368	81,186	77.965	37,130
Montgomery	126.412	59,761	100,646	45,483	77,181	72,305	93,107	58,772	189,518	93,431
Morgan	51,403	37,339	52,420	27,649	26,982	38,204	29,746	29,608	58,963	35,397
Morrow	96,175	85.524	110,956	48,820	68,807	82,940	59,178	55,672	92,307	112,076
Muskingum	116,845	92,066	97,350	46,938	54,750	67,285	50,667	57,078	114,463	82,136
Noble	72,237	59,902	79,589	51,792	33,350	52,563	40,685	35,949	45,793	26,378
Ottawa	63,948	118,935	50,931	35,316	48,677	34,506	36,360	33,258	50,535	58,804
Paulding	55,952	42.460	47,156	30,577	61,103	155,748	31,663	18,171	85,738	63,214
Perry	68,585	41,141	56,666	32,096	42.467	57,580	41,315	41,625	86.165	50,544
Pickaway	32,243	33,629	41,371	20,013	45,968	36,346	30,884	24,299	63,156	20,275
Pike	57,935	35,168	66,428	27,714	33,698	31,765	21,104	29,530	63,625	28,140
Portage	765,851	690,889	601,581	714,431	813,049	712,378	775,471	473,724	637,293	778,784
Preble	51,950	23,067	40,049	22,611	50,707	40,572	53,154	31,611	106.609	66,178
Putnam	87,891	88,075	124,854	63,048	128,987	74,619	80,482	48.615	133.975	99,537
Richland	186,016	162,370	186,386	130,446	186,587	161,448	225,483	113,671	237,819	253,721
Ross	87,431	59.262	76,828	39,946	44,234	48,194	38,889	42.483	107.610	39,823
Sandusky	219,977	213,943	170,052	170,312	245,891	162,899	200,687	140,743	188,396	235,510
Scioto	119,130	81,797	101,580	65,646	75,337	81,045	67,273	58,348	103.940	57,618
Seneca	196,754	150,480	154,878	123,574	175,008	113,655	155,098	82,232	148.827	194.062
Shelby	65,982	44,376	85,035	37,952	57,393	36,202	41,111	25,364	109.525	57,520
Stark	407,912	361,289	404,152	267,908	382,709	314,916	415,051	258,558	412.341	437.378
Summit	338,880	309,805	244,840	266,166	327,643	239,935	349,608	215.308	287,431	316,211
Trumbull	326,023	287,837	222,976	333,400	362,689	318,782	351,131	207,751	453,529	493.047
Tuscarawas	175,772	145.104	188,196	102,261	127,563	139,306	160,579	144.449	274.624	246,514
Union	29,040	14,576	26,646	8,960	6,716	10,572	12,844	12.092	35.317	20,972
Van Wert	55,778	41,852	80,840	39,674	94,011	60,440	43,550	25,393	86.270	58.120
Vinton	18.885	22,139	33,144	13,344	15,440	21,052	23,728	22,446	51.432	27.558
Warren	32,547	24,487	27,175	18,529	33.517	25,520	42,321	36,788	162,799	58.702
Washington	202,615	143,250	140,752	91,820	142,099	122,314	109,693	103.866	117,174	78,869
Wayne	500,178	439,791	385,049	189,821	298,606	241,197	234,325	150,250	274.178	315.879
Williams	102,841	75,025	81,006	41,434	93,283	112,681	86.237	44,184	70.573	79,983
Wood	135,547	119,026	78,592	79,796	133.774	94,274	104,640	70,222	103.283	86.775
Wyandot	63,472	57,980	84,962	34,398	66,627	57,312	67,397	32,361½	80,716	126,330
Total product	11,998,075	9,997,543	10,507,822	8,296,236	11,313,191	9.203,633	10,097,418	7,286,582	12.906.134	12,557,717
Total area	124,826	109,811	113,064	115,600	131,234	118,584	118,165	114,832	153,362	253,884

Average area for ten years, 135,336 acres.
Average product for ten years, 10,416,435 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF TOBACCO IN OHIO FOR TEN YEARS.

Counties.	Pounds of Tobacco.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	2,604,520	1,681,840	2,465,940	2,217,898	2,718,872	2,131,862	1,828,170	786,098	1,307,617	917,280
Allen	....	....	....	....	....	....	40	520	....	....
Ashland	....	....	....	....	1,400	....	1,400	2,995	4,800	5,600
Ashtabula	....	....	....	....	....	....	....	....	....	....
Athens	....	....	....	....	5,720	2,600	10,300	3,700	6,010	300
Auglaize	....	3,800	8,390	12,000	21,200	11,550	30,860	4,100	7,880	6,580
Belmont	875,315	823,282	1,055.562	824,509	762,940	704,452	1,289,763	1,226.297	1,306,728	639,956
Brown	4,619,448	4,237,990	4,527,058	5,098,122	4,774.309	4,534,064	3,300,029	2,008.930	2,522,900	2,337,186
Butler	1,058,770	735,100	422,430	710,875	713,800	1,029,585	1,035,965	531,662	371,920	468,091
Carroll	....	....	....	....	....	....	....	....	....	....
Champaign	35,290	33,400	52,780	52,190	115,240	55,262	98,080	19,100	16,474	18,400
Clark	199,000	113,450	232,880	185,635	265,860	222,335	251,060	150.260	121.737	14,566
Clermont	1,998,301	1,897,956	2,056,776	2,335,483	2,984,595	2,476,932	1,597,850	991.950	1,301.950	1,316,965
Clinton	9,900	17,700	18,450	57,900	73,040	74,624	102,546	23,590	76,500	16,500
Columbiana	....	....	....	....	....	....	....	....	....	50
Coshocton	....	1,000	1,500	1,500	....	....	10	....	....	....
Crawford	....	....	....	....	....	....	....	....	....	215
Cuyahoga	....	....	8,200	....	....	....	....	....	....	....
Darke	9,301,531	8,712,814	10,279,035	8,310,165	11,106,872	10,451,175	10,270,356	5,768.440	2,700,049	3,309,618
Defiance	....	1,500	500	1,500	1,320	3,950	5,650	3,600	3,400	....
Delaware	....	....	....	....	....	....	100	....	....	....
Erie	....	....	....	....	....	....	....	80	100	....
Fairfield	....	....	....	....	200	150	....	4	200	800
Fayette	....	....	....	....	500	....	45	....	30	....
Franklin	....	30,000	1,100	....	5,000	....	20	....	20	10
Fulton	700	....	....	....	....	....	....	....	....	....
Gallia	366,520	360,160	436,766	415,228	700,992	721,720	890,582	235,955	475,400	483,643
Geauga	....	....	....	....	....	....	....	24	....	....
Greene	343,495	176,048	403,058	331,896	461,063	489,975	492,439	190,540	79,650	128,810
Guernsey	138,795	163,959	144,530	133,132	141,720	99,085	240,461	218,945	252,635	99,087
Hamilton	132,337	119,000	124,700	147,260	101,900	189,270	103,422	106,940	174,120	44,599
Hancock	....	....	....	7,300	....	....	....	25¼	....	35
Hardin	....	....	....	....	....	....	....	....	....	....
Harrison	....	....	....	....	....	....	....	....	80	....
Henry	....	....	....	....	150	100	120	....	....	....
Highland	4,000	10,000	2,400	24,350	54,100	33,650	23,270	14,060	9,570	9,000
Hocking	....	....	....	....	....	....	400	120	550	....
Holmes	....	....	....	....	100	....	....	75	....	....

Huron	....	....	....	....	....	....	....	....	....	....
Jackson	....	....	....	....	....	....	....	....	....	....
Jefferson	....	....	....	....	....	7,800	....	....	192	....
Knox	....	....	....	....	....	....	10	....	....	50
Lake	4,000	3,000	25	1,900	....	....	....	650	2,000	4,000
Lawrence	48,368	63,700	54,550	65,946	98,975	70,848	40,297	17,800	23,700	40,530
Licking	....	....	....	500	1,000	2,000	....	....	....	142
Logan	....	50	....	....	1,200	16,700	66,000	15	31,048	11,755
Lorain	....	....	....	....	....	178	....	....	....	186
Lucas	32	....	200	1,800	....	25	300	....	100	....
Madison	....	....	....	....	....	....	20	....	....	600
Mahoning	....	97	....	....	....	75,210	....	....	....	....
Marion	2,500	....	....	....	....	....	....	100	....	....
Medina	145,620	165,500	241,660	206,821	276,608	223,966	238,440	134,500	110,450	180,627
Meigs	....	800	7,000	5,400	22,725	23,900	1,900	9,330	10,025	5,000
Mercer	6,164	6,200	24,420	19,270	45,350	30,600	18,200	1,025	....	....
Miami	3,894,770	3,211,654	3,816,515	2,725,052	3,322,427	3,640,545	3,056,706	1,964,420	1,126,102	903,259
Monroe	761,335	745,955	927,760	811,200	778,970	728,515	1,388,350	1,293,479	1,496,205	748,578
Montgomery	12,405,980	8,419,270	12,609,597	9,615,419	10,323,473	13,691,551	12,918,397	7,132,269	5,227,139	5,459,681
Morgan	....	....	8,500	1,700	39,450	23,852	101,850	60,270	153,525	93,285
Morrow	....	....	....	....	....	....	....	....	32	....
Muskingum	1,400	1,100	1,800	1,200	2,800	....	13,340	3,800	9,200	2,500
Noble	1,232,938	783,508	1,031,618	917,643	974,656	642,144	1,150,675	833,680	1,321,737	601,408
Ottawa	....	....	....	....	....	....	....	....	....	....
Paulding	3,000	....	7,000	13,700	14,800	6,950	4,000	800	620	....
Perry	....	1,000	2,000	1,800	3,225	2,000	7,400	1,500	....	3,000
Pickaway	....	....	....	....	....	....	....	....	40	....
Pike	7,800	19,100	22,600	47,130	50,275	26,070	17,443	22,910	27,900	8,100
Portage	....	....	1,960	....	800	....	3,100	1,000	50	....
Preble	5,095,539	3,203,455	5,032,959	3,517,182	4,724,452	5,724,404	4,905,350	3,128,000	1,838,148	2,103,300
Putnam	....	1,000	1,200	1,000	200	50	597	320	70	....
Richland	....	....	....	....	....	....	....	....	....	....
Ross	20,425	4,200	300	....	....	....	....	....	5,450	2,300
Sandusky	....	....	....	....	....	....	....	....	....	....
Scioto	257,400	213,075	250,500	375,407	406,809	348,315	283,390	182,275	237,160	77,400
Seneca	....	....	....	....	....	3,600	500	....	....	....
Shelby	32,990	43,355	158,344	78,367	388,130	173,230	165,021	37,968	17,000	10,600
Stark	500	5,150	2,852	2,200	5,116	1,000	570	4,100	....	950
Summit	....	....	700	100	....	....	....	....	....	....
Trumbull	....	....	....	....	....	....	75	....	....	....
Tuscarawas	....	....	....	....	....	....	....	....	300	....
Union	27	....	....	640	2,000	150	....	....	125	125
Van Wert	....	....	....	....	....	....	....	25	....	....
Vinton	30	....	....	....	....	2,200	1,850	190	25	....
Warren	4,100,536	2,014,207	2,859,282	2,724,593	3,069,224	3,446,973	3,217,078	1,796,522	1,506,088	4,244,240
Washington	4,800	6,070	4,750	2,700	2,200	4,630	54,190	78,934	124,613	72,930
Wayne	229,980	313,425	331,239	349,765	889,225	334,710	306,021	248,315	186,825	209,490
Williams	....	....	....	....	....	....	....	....	....	....
Wood	....	....	....	....	....	....	150	....	....	....
Wyandot	....	....	200	....	....	....	....	18	....	....
Total product	49,944,056	39,343,870	49,641,586	42,355,378	50,454,983	52,484,457	49,534,158	29,242,225	24,196,189	24,601,327
Total area	58,451	50,878	55,322	58,829	67,522	56,242	57,659	40,823	34,608	32,856

Average area for ten years, 51,319 acres.
Average product for ten years, 41,179,823 pounds.

COMPARATIVE TABLE SHOWING PRODUCTION OF BUCKWHEAT IN OHIO FOR TEN YEARS.

Counties.	Number of Bushels.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	60	10	25	47	72	40	99	158	42	13
Allen	....	2	13	....	186	115	221	188	602	41
Ashland	396	136	665	407	1,378	252	747	2,432	4,508	2,501
Ashtabula	92,476	52,841	37,866	84,077	44,697	33,974	65,137	55,960	71,929	89,775
Athens	777	255	....	28	90	65	....	346	506	280
Auglaize	204	245	396	420	2,624	230	319	1,022	4,909	1,222
Belmont	740	160	915	1,182	928	1,344	1,951	1,234	2,017	1,266
Brown	720	142	95	92	28	35	196	156	87	....
Butler	8	60	....	50	37	....	....	56	1,097	14
Carroll	489	65	312	703	1,064	440	1,872	821	3,071	2,936
Champaign	159	19	16	52	1,244	67	809	870	1,171	989
Clark	60	52	24	107	226	56	90	172	196	147
Clermont	....	69	91	71	261	153	462	200	231	169
Clinton	25	2	30	195	688	208	148	325	935	237
Columbiana	3,250	570	1,100	970	1,576	988	2,165	2,058	5,019	6,952
Coshocton	1,636	507	2,595	2,811	4,625	1,156	1,911	1,444	6,025	4,457
Crawford	110	230	120	161	562	163	701	1,090	2,241	904
Cuyahoga	143	158	248	404	123	221	84	279	315	1,276
Darke	167	46	202	217	829	534	847	1,354	2,228	820
Defiance	1,146	1,201	299	301	1,076	2,817	1,915	2,812	2,166	284
Delaware	180	340	1,050	612	1,207	383	921	975	1,426	265
Erie	4,926	3,008	1,933	3,632	14,085	2,428	3,482	4,582	11,342	4,673
Fairfield	200	....	71	164	682	147	676	182	762	828
Fayette	886	....	15	....	1,146	....	25	47	385	....
Franklin	80	20	217	93	210	159	801	1,946	2,469	323
Fulton	3,458	1,233	1,299	2,593	6,014	7,341	5,491	7,208	8,119	4,300
Gallia	45	16	192	66	50	68	119	200	272	64
Geauga	12,078	6,277	4,095	4,912	2,286	1,575	5,028	5,487	6,988	5,975
Greene	75	1,110	1,400	45	110	121	129	176	468	50
Guernsey	824	341	2,035	1,583	1,573	1,097	1,617	1,738	2,880	872
Hamilton	5,568	10	5	24	38	15	176	60	674	30
Hancock	66	27	80	90	570	168	413	1,049	1,009	449
Hardin	434	247	608	51	527	29,358	314	658	1,330	550
Harrison	405	18	205	502	901	84	570	241	1,118	983
Henry	623	600	292	548	1,317	2,862	3,567	3,627	3,131	28,426
Highland	10	10	212	276	341	189	197	141	508	88
Hocking	1,580	1,034	3,507	2,942	4,885	1,792	2,137	1,127	2,830	3,623
Holmes	434	284	508	257	740	200	762	1,032	4,256	3,727

Huron	603	295	196	50,615	2,483	719	1,956	3,182	4,465	2,437
Jackson	1,445	1,133	1,784	1,991	1,377	1,509	2,254	1,823	1,129	658
Jefferson	114	143	158	405	266	128	760	303	997	972
Knox	....	95	973	1,451	2,807	347	1,043	1,634	10,182	3,510
Lake	8,340	4,781	2,610	3,560	2,393	1,263	955	917	2,895	3,086
Lawrence	....	....	256	....	11	13	93	119	307	161
Licking	1,669	600	1,847	1,280	2,151	1,380	3,059	2,904	9,928	1,396
Logan	761	87	736	168	2,105	124	813	1,370	2,385	1,287
Lorain	255	311	265	741	499	190	333	561	1,092	675
Lucas	10,955	4,717	3,943	5,020	10,097	13,260	8,327	10,232	10,028	6,799
Madison	....	....	48	16	941	61	54	62	278	37
Mahoning	4,016	1,316	2,100	2,728	2,124	1,628	1,713	2,559	5,135	2,674
Marion	75	89	24	12	128	102	543	325	343	434
Medina	12	402	330	685	1,359	30,370	1,050	1,226	4,439	952
Meigs	151	261	579	453	249	107	321	233	242	142
Mercer	6	93	92	98	922	139	389	754	1,909	238
Miami	36	....	36	....	662	55	57	25	261	55
Monroe	2,800	1,652	9,251	4,925	3,375	4,392	4,675	1,918	5,475	6,688
Montgomery	198	....	....	5	20	36	146	20	180	190
Morgan	621	190	1,087	598	533	631	874	518	1,352	1,063
Morrow	15	....	433	429	721	118	1,100	1,049	1,251	495
Muskingum	195	31	174	364	783	372	597	360	607	480
Noble	189	20	431	1,225	895	715	501	365	732	645
Ottawa	190	55	22	650	59	186	257	355	759	530
Paulding	850	952	437	325	2,126	2,423	3,187	4,401	1,700	186
Perry	1,844	1,070	1,934	2,339	2,627	1,225	2,384	1,148	1,579	907
Pickaway	355	44	....	....	796	45	....	....	42	10
Pike	2,147	1,132	2,065	2,134	2,190	583	1,525	933	1,402	365
Portage	7,349	3,599	3,228	3,971	5,004	3,540	6,007	9,237	12,327	6,778
Preble	10	40	....	....	193	5	151	54	163	12
Putnam	82	247	60	52	568	323	602	1,681	1,933	614
Richland	318	226	727	1,628	980	510	1,414	1,773	3,138	2,679
Ross	1,310	783	499	1,723	1,105	223	605	272	1,393	247
Sandusky	480	80	496	118	881	347	903	453	2,074	1,265
Scioto	3,110	1,512	1,643	1,532	765	718	1,445	652	1,723	1,767
Seneca	264	136	15	82	437	224	279	479	1,006	465
Shelby	....	4	17	75	2,885	268	3,496	1,357	4,777	2,468
Stark	833	313	1,235	894	509	701	1,099	1,197	3,329	3,086
Summit	1,121	1,161	1,473	784	300	313	937	2,027	3,761	3,100
Trumbull	29,080	9,236	5,937	13,612	9,100	5,609	16,693	15,846	24,074	18,546
Tuscarawas	1,129	889	982	936	2,508	939	1,568	1,801	4,694	2,171
Union	125	391	964	495	1,307	205	1,197	935	2,327	68
Van Wert	196	46	101	46	705	498	1,357	2,259	795	262
Vinton	1,504	645	1,009	2,009	1,876	587	1,646	805	1,455	1,650
Warren	56	159	....	127	77	273	195	905	579	56
Washington	2,090	885	2,067	2,240	2,270	1,276	2,610	1,537	2,492	1,994
Wayne	722	257	136	834	543	259	835	1,116	2,662	2,295
Williams	1,085	379	424	334	766	2,016	1,779	2,013	1,946	808
Wood	1,265	760	40	423	2,726	555	1,381	2,823	3,052	806
Wyandot	66	89	127	251	442	251	420	329	801	300
Total product	224,475	109,651	115,727	225,068	179,642	173,206	191,684	192,300	310,859	258,024
Total area	13,338	7,835	8,617	11,920	14,278	10,408	11,974	14,811	19,932	16,423

Average area for ten years, 12,954 acres.
Average product for ten years, 198,064 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF FLAX SEED IN OHIO FOR TEN YEARS.

Counties.	Number of Bushels.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams										7
Allen					145			17	185	108
Ashland	2,927	9,314	16,929	17,205	14,455	22,273	15,283	9,015	12,848	23,708
Ashtabula							1		502	195
Athens										
Auglaize				2	7		10	126		257
Belmont			5							
Brown		15	53							
Butler						90			500	
Carroll	50	6				27				
Champaign			10	170				30	60	
Clark			28	45	645					129
Clermont										
Clinton				100	108	25				
Columbiana		12								
Coshocton		5								
Crawford	12	100	75	267	327	250	862	1,022	2,195	3,965
Cuyahoga								60	60	
Darke	78			262	482	100	85		188	10
Defiance			65			138	56		10	
Delaware			50						90	
Erie		8								
Fairfield			36							
Fayette		12						62		
Franklin	38	15								
Fulton			299	501	9	343		10	128	385
Gallia								10	5	
Geauga			10				90	60	336	653
Greene				50	10			70	266	261
Guernsey				4	21	5	4	12	8	
Hamilton										
Hancock	24			18	50			92	152	63
Hardin	432			85	733		5		200	132
Harrison										
Henry		10	12		12	283	10	54	5	38
Highland		96	147	64	31				51	
Hocking									4	

Holmes		35								
Huron	6,723	3,486	6,143	6,026	3,833	1,718	2,952	1,965	6,469	8,738
Jackson										2
Jefferson									5	6
Knox									40	4
Lake					10		2,800			
Lawrence										
Licking										6
Logan				20	8	10			250	9
Lorain	300	1,195	2,778	2,216	1,882	774	913	1,320	2,148	1,235
Lucas	500	375	450	494		500	235	245	90	402
Madison										
Mahoning								45	487	332
Marion								779	84	40
Medina	131	345	2,645	6,399	4,072	2,719	5,922	4,370	7,611	8,434
Meigs			14							1,991
Mercer		16	8	6		10		13	33	
Miami		20		100	360	204	80	880	275	240
Monroe	25	4				7	6	1	36	16
Montgomery	200				28		125	7	48	190
Morgan						19				
Morrow					97				95	101
Muskingum			13							
Noble		15		5						
Ottawa										
Paulding					20	7	100	40	95	20
Perry										
Pickaway				60						
Pike				5						
Portage		5	18	97	134	90	327	404	633	796
Preble			66	191	1,085		225	344	232	491
Putnam	25		25		9		11	2		
Richland	285	530	1,629	1,434	1,573	1,086	3,012	1,415	4,900	4,797
Ross										
Sandusky										
Scioto									28	20
Seneca	11		32	120	4		220	80	202	41
Shelby					448	84	120	277	111	
Stark	11	22				5	2	7½	20	66
Summit										
Trumbull							319	518	1,792	3,106
Tuscarawas	12									26
Union								6		
Van Wert			150	90	100	20	60	15		60
Vinton								2	30	
Warren					90					
Washington	10	2						4		
Wayne	147	480	1,580	1,916	2,237	1,117	2,412	2,261	3,948	5,677
Williams										
Wood					85	75	60		150	418
Wyandot		15		36						
Total product	11,941	16,138	33,270	37,988	33,110	31,979	36,307	25,640	47,605	67,223

Average product for ten years, 34,020 bushels.

COMPARATIVE TABLE SHOWING PRODUCTION OF FLAX IN OHIO FOR TEN YEARS.

Counties.	Pounds of Fiber.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Ashland	142,700	851,457	1,187,045	1,155,800	800,203	1,365,500	766,360	552,500	986,550	838,407
Ashtabula									3,300	
Auglaize					7					
Brown	6		73							
Champaign			30							
Crawford					4,005	400	18	5	8,000	70,000
Darke										
Fayette							14			
Fulton	751									
Geauga									5,006	21,930
Hardin	2,000									
Henry			20							6,000
Highland				1,500						
Huron	161,800	238,500	484,200	401,300	241,500	287,300	121,400	90,115	250,680	502,804
Knox							30			
Lake							320			
Lorain	12,000	92,500	347,900	182,800	108,500	31,875	16,500	59,010	41,500	45,000
Lucas	3	60					10			158
Mahoning									7,000	6
Medina		2,003	48,094	83,700	121,700	55,400	63,019	37,514	121,200	232,300
Miami	12,000		2,000			1,006	6	84,800	22,000	3,000
Monroe		15								
Montgomery									100	
Portage				2,000	6,000	4,000	11,087	29,500	56,400	25,000
Preble			20							
Putnam						400	50			
Richland	10,000	36,000	107,800	58,800	260,000	56,800	43,000	42,650	275,400	215,100
Seneca									10	435
Shelby					10,000		6,000	1,603		
Stark								4		
Trumbull								19,000	165,700	102,235
Warren				20						
Wayne	13,000	24,470	85,903	67,300	240,100	36,100	135,370	126,600	275,300	258,560
Totals	343,460	1,245,005	2,263,085	1,953,220	1,792,015	1,838,781	1,163,184	1,013,301	2,218,146	2,320,935

Average product for ten years, 1,615,114 pounds.

COMPARATIVE TABLE SHOWING PRODUCTION OF BROOM CORN IN OHIO FOR TEN YEARS.

Counties.	Pounds of Broom Brush.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	....	600	600	350	15,305	1,800	....	2,387	500	600
Allen	....	....	2,000	2,000	1,100	....	30	....	....	....
Ashland	....	....	....	350	2,540	800	800	400	3,110	3,900
Ashtabula	12	....	....	....	....	....	....	....	....	450
Athens	....	....	400	....	....	....	....	....	....	....
Auglaize	1,080	3,000	3,500	3,090	150,375	86,110	100,700	162,000	90,100	248,020
Belmont	1,000	....	1,388	1,125	4,121	2,000	2,000	2,320	5,008	4,320
Brown	....	1,008	10,600	4,503	6,595	300	2,714	2,693	550	3,300
Butler	6,302	6,000	3,400	6,550	61,050	6,000	7,500	13,800	33,000	20,500
Carroll	....	....	84	560	350	....	....	....	....	....
Champaign	....	6,000	30,200	16,100	56,800	345,305	47,500	21,650	....	7,600
Clark	....	....	....	1,000	15,640	900	....	....	....	....
Clermont	....	....	2,200	2,300	6,325	....	....	....	....	2,000
Clinton	....	....	....	....	175	150	....	1,610	....	400
Columbiana	....	....	....	....	....	100	....	800	350	247
Coshocton	....	....	2,000	25	....	50	....	....	....	30
Crawford	....	....	....	625	315	....	....	1,000	....	....
Cuyahoga	....	....	100	40	....	....	....	....	....	....
Darke	10,450	6,000	14,100	28,700	71,070	39,150	41,360	3,650	17,022	36,520
Defiance	750	....	5,000	....	6,000	....	....	3,200	200	....
Delaware	....	....	....	500	600	....	3,000	....	....	....
Erie	....	....	600	2,500	3,000	....	....	4,000	10,600	2,000
Fairfield	....	....	262	400	6,780	700	....	350	145,250	801
Fayette	10	....	....	....	....	3	8,000	6,000	300	4,200
Franklin	12	1,600	13,100	6,540	19,050	6,950	39,820	4,550	6,000	4,500
Fulton	4,000	....	....	7,011	9,042	11,400	500	1,700	2,000	....
Gallia	100	3,200	700	4,000	2,025	5,495	4,600	....	3,600	....
Geauga	....	50	....	....	....	....	....	....	1,400	....
Greene	....	....	4,650	5,650	29,195	700	....	500	4,000	....
Guernsey	400	400	400	900	1,400	630	175	800	....	....
Hamilton	....	3,500	3,500	2,364	8,117	18,000	82	....	1,300	12,800
Hancock	....	....	....	6,000	16,020	88	....	520	3,000	....
Hardin	....	....	60,000	800	5,720	....	....	1,000	310	200
Harrison	....	....	....	732	238	....	....	....	....	100
Henry	....	....	....	....	435	1,200	1,000	4,000	4,550	....
Highland	10,500	....	6,200	8,430	9,500	3,110	200	8,000	....	900
Hocking	....	75	1,470	1,640	4,335	2,400	1,000	2,090	450	3,400

COMPARATIVE TABLE SHOWING PRODUCTION OF BROOM CORN IN OHIO FOR TEN YEARS—Concluded.

Counties.	Pounds of Broom Brush.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Holmes	....	....	1	1,725	3,301	10	600	2,000	....	400
Huron	3,050	3,250	6,000	5,400	5,675	....	....	....	....	....
Jackson	....	....	....	....	....	....	....	....	....	....
Jefferson	....	....	150	....	....	....	....	....	....	....
Knox	....	....	....	....	80	....	....	....	....	1,910
Lake	....	....	....	....	....	....	....	....	....	4,000
Lawrence	....	200	....	....	475	....	....	3,700	2,427	3,000
Licking	2,000	5,600	8,100	3,000	12,387	12,800	2,500	3,150	8,010	2,500
Logan	5	....	....	....	8,500	....	....	....	....	27,000
Lorain	....	....	....	....	....	....	....	3,809	....	2,400
Lucas	....	....	....	25	800	....	....	....	5,000	....
Madison	10,000	1,600	22,000	....	....	....	....	....	....	2,000
Mahoning	....	....	....	....	100	15	60	....	....	....
Marion	....	60,000	10,100	5,700	25,340	14,550	....	....	5,639	....
Medina	....	11,000	600	1,950	1,800	....	....	....	....	1,400
Meigs	850	6,000	3,980	4,000	16,756	276	....	1,400	1,045	5,930
Mercer	700	....	3,075	1,500	11,074	1,080	80	2,100	3,000	14,200
Miami	6,800	1,750	4,150	22,450	42,890	10,630	6,000	4,000	....	3,625
Monroe	....	....	56	....	2,312	472	345	25	145,400	50
Montgomery	11,500	800	28,090	23,600	19,300	44,900	21,500	1,400	....	25,600
Morgan	....	....	190	1,450	7,500	260	1,450	310	....	540
Morrow	....	....	....	1,800	100	....	....	....	....	....
Muskingum	....	....	400	85	140	60	....	300	500	100
Noble	....	....	....	2,000	2,000	....	900	2,000	....	502
Ottawa	....	....	114	....	....	....	....	....	....	....
Paulding	....	3,050	....	....	3,300	400	400	....	....	....
Perry	937	....	....	1,700	1,423	....	....	900	....	....
Pickaway	200	200	4,900	52,000	185,300	....	....	....	....	66,000
Pike	1,150	800	400	3,750	4,925	....	1,000	2,000	300	200
Portage	....	....	....	....	....	....	....	700	....	200
Preble	1,700	4,600	10,600	16,000	27,530	3,180	2,000	4,820	67,000	9,300
Putnam	....	....	....	96	2,800	20	36,000	15,000	700	500
Richland	....	....	....	2,100	390	....	100	700	1,460	....
Ross	....	....	8,000	8,700	52,700	8,400	500	3,000	....	....
Sandusky	....	800	1,000	1,600	1,200	....	....	....	....	109
Scioto	600	1,200	250	4,800	15,200	280	200	2,070	1,000	3,944
Seneca	....	....	....	....	600	....	....	....	700	....
Shelby	3,500	6,200	6,400	4,354	37,278	11,000	4,000	4,400	7,200	....

Stark	....	....	....	6,180	....	3,832	50	....	....	....
Summit	....	....	500	53	....	250	....	....	....	....
Trumbull	6,000	....	100	100	....	1,000	....	....	....	....
Tuscarawas	....	....	500	2,005	2,590	664	2,000	8,000	3,090	1,500
Union	....	....	150	3,000	8,287	5,055	2,000	2,500	7,850	5,600
Van Wert	....	....	90	160	17,300	8,000	....	....	....	250
Vinton	....	....	....	....	800	....	....	100	....	....
Warren	18	....	100	....	11,075	3,600	....	....	1,000	....
Washington	....	....	....	170	2,062	1,000	600	....	....	....
Wayne	20	....	530	....	5,285	400	....	....	50	1,755
Williams	2,000	....	....	2,125	....	2,000	....	....	....	400
Wood	....	....	....	3,200	1,900	....	....	....	....	1,500
Wyandot	3	....	1,100	....	2,000	2,000	900	....	....	....
Total product	85,649	138,483	288,080	301,563	1,057,693	669,475	344,166	317,404	593,971	543,203
Total area	278	227	686	726	2,228	907	748	781	979	1,053

Average area for ten years, 861 acres.
Average product for ten years, 433,969 pounds.

COMPARATIVE TABLE SHOWING USE OF COMMERCIAL FERTILIZERS FOR TEN YEARS.

Counties.	Pounds used.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	3,508,900	3,311,023	3,211,435	2,919,220	2,931,140	3,574,714	3,026,600	2,268,462	2,101,680	2,381,250
Allen	289,100	415,800	398,000	328,400	340,500	443,040	150,190	104,924	180,475	369,900
Ashland	2,977,070	2,842,200	2,397,610	2,191,350	2,419,320	2,697,880	2,657,880	2,095,100	1,382,973	1,751,900
Ashtabula	5,580,978	6,877,055	5,478,807	4,419,249	3,827,922	4,290,050	4,290,760	3,999,040	3,468,633	4,668,300
Athens	1,684,378	835,500	1,371,910	1,103,541	1,626,770	1,790,700	1,844,100	1,609,405	1,414,960	1,709,990
Auglaize	714,300	1,128,900	833,550	344,210	183,990	394,450	83,100	58,600	25,500	19,800
Belmont	1,499,120	1,817,200	2,054,865	1,794,244	2,221,540	1,913,426	1,726,742	2,140,275	1,777,607	1,623,377
Brown	2,707,050	1,965,797	1,938,785	1,627,582	1,717,572	4,079,375	3,640,480	1,218,577	1,038,700	1,671,600
Butler	935,300	750,050	995,900	317,940	185,405	1,064,300	493,840	214,100	143,250	145,450
Carroll	1,762,700	1,666,360	1,671,900	1,556,340	1,177,753	1,678,730	1,899,281	1,703,125	1,213,670	1,053,103
Champaign	1,655,960	2,723,700	2,526,150	1,844,200	1,586,350	2,691,482	1,410,980	841,820	788,630	1,354,070
Clark	1,766,500	1,693,050	1,591,200	908,360	883,970	1,341,070	1,034,668	646,800	396,708	578,500
Clermont	2,082,488	1,220,237	1,328,050	1,160,755	1,040,530	1,205,660	1,032,190	753,600	649,535	1,122,980
Clinton	3,005,685	2,665,690	2,623,164	1,280,500	764,300	1,514,200	810,263	665,048	336,560	795,230
Columbiana	4,131,796	3,543,110	3,171,208	3,182,900	3,721,414	3,982,220	3,399,088	3,255,009	2,763,300	2,563,700
Coshocton	1,811,775	2,176,716	2,171,770	1,457,665	1,239,765	1,891,700	1,461,990	1,163,050	827,454	1,286,006
Crawford	2,404,250	1,915,280	1,703,200	1,218,523	1,357,220	1,511,020	1,327,400	1,067,488	711,020	1,116,918
Cuyahoga	4,874,950	3,995,200	3,827,206	3,838,160	11,955,470	4,470,300	3,610,600	2,984,390	3,539,340	3,351,100
Darke	1,404,464	1,591,600	1,369,520	716,975	783,340	1,997,157	914,138	694,410	582,515	926,900
Defiance	213,360	98,700	65,060	90,500	76,500	67,260	75,300	57,450	32,000	46,500
Delaware	1,343,130	1,160,280	1,007,520	1,043,086	978,863	1,189,350	788,100	237,456	295,000	665,680
Erie	1,870,990	2,104,000	1,277,350	1,231,900	812,730	1,460,350	903,870	674,760	683,290	536,501
Fairfield	4,837,850	4,101,710	4,847,820	2,876,020	2,579,480	4,186,150	2,755,650	1,885,490	1,408,600	2,503,250
Fayette	2,647,750	2,558,300	2,948,200	2,525,115	1,450,100	1,829,450	1,573,471	782,171	536,436	745,700
Franklin	2,113,340	2,479,900	1,471,528	922,620	655,400	723,500	296,350	200,701	252,750	621,375
Fulton	142,600	109,550	76,900	93,600	147,425	125,380	151,250	104,900	28,900	86,100
Gallia	1,342,106	1,122,850	1,119,100	1,825,230	2,051,730	2,318,660	2,341,521	2,479,963	1,750,005	1,654,000
Geauga	3,058,900	2,709,850	2,989,500	2,526,400	2,852,840	2,626,425	2,391,347	2,313,150	1,882,823	2,298,515
Greene	2,013,250	1,953,950	1,662,900	738,900	622,100	859,250	529,400	261,940	123,300	575,900
Guernsey	1,391,710	1,555,350	1,907,895	1,601,358	1,503,190	2,039,340	2,136,725	1,789,000	1,402,200	1,681,505
Hamilton	206,375	40,200	....	....	143,231	....	....	....	....	....
Hancock	648,675	666,000	805,600	615,350	456,250	738,800	494,000	231,350	263,555	449,340
Hardin	648,800	316,481	575,700	352,850	415,700	279,300	146,900	34,850	100,200	175,900
Harrison	701,440	832,385	898,700	659,001	674,300	897,780	810,421	1,316,690	726,105	737,638
Henry	154,810	74,900	59,369	93,052	82,150	72,240	70,100	40,300	26,900	45,600
Highland	5,537,290	6,835,633	4,596,340	3,679,770	2,868,200	3,300,780	3,848,215	3,251,640	2,397,020	3,149,200
Hocking	2,013,610	1,751,007	1,719,876	1,618,250	1,578,385	2,357,840	2,356,851	2,027,768	2,002,923	1,622,515
Holmes	2,106,470	1,894,100	1,849,383	1,746,250	1,263,950	1,702,830	2,120,800	1,388,720	1,210,950	1,408,280

Huron	4,934,440	3,899,270	4,200,410	3,373,021	2,590,950	4,068,079	2,868,650	2,794,010	2,014,068	2,735,670
Jackson	1,356,200	1,394,600	2,187,610	1,582,400	2,004,319	2,380,320	1,857,810	1,934,568	1,484,910	2,086,300
Jefferson	1,339,650	1,440,190	1,317,040	1,067,340	994,450	1,151,650	1,422,910	1,447,120	1,221,682	1,601,339
Knox	3,105,420	3,080,100	2,402,070	2,390,350	2,699,220	3,224,630	2,402,450	1,867,825	1,405,140	2,110,998
Lake	2,073,858	1,547,755	1,435,200	1,730,900	1,129,500	1,743,790	1,117,600	550,429	681,700	966,400
Lawrence	175,020	359,800	315,006	454,960	520,627	554,190	415,800	205,350	211,125	162,995
Licking	3,605,280	3,262,650	3,081,550	2,333,950	2,330,497	3,853,490	2,297,390	1,346,860	1,104,810	2,013,290
Logan	1,141,470	1,368,960	1,276,300	661,550	582,500	1,215,956	382,200	193,890	161,300	160,200
Lorain	3,869,375	5,895,890	3,557,700	3,646,110	2,672,400	2,192,506	3,074,430	2,517,699	1,740,420	2,384,951
Lucas	354,060	138,500	106,280	72,400	72,900	250,510	147,500	81,400	118,700	192,900
Madison	290,600	370,800	599,064	217,000	117,100	173,945	60,600	8,000	....	44,000
Mahoning	4,140,875	3,545,154	4,011,274	3,926,690	3,286,717	2,574,465	3,673,980	3,992,194	2,965,486	4,172,897
Marion	610,900	462,100	99,530	320,215	255,900	331,100	257,900	81,700	90,910	114,012
Medina	7,252,300	6,035,900	5,532,950	5,065,486	5,248,250	669,380	5,267,500	4,399,290	3,257,420	4,417,645
Meigs	1,717,550	1,698,610	1,686,792	2,395,118	2,616,850	2,762,590	2,931,254	2,378,017	1,955,889	2,407,860
Mercer	576,550	349,000	320,300	251,200	134,500	178,150	102,100	68,100	8,500	26,900
Miami	1,953,129	1,577,300	2,007,400	1,453,830	1,373,080	2,298,280	1,310,426	696,650	672,460	661,043
Monroe	2,156,660	2,053,550	2,277,100	1,735,100	1,627,468	4,850,551	2,321,430	1,890,260	1,585,502	1,540,260
Montgomery	3,400,750	3,512,400	3,584,425	2,666,660	1,915,300	3,326,597	2,391,778	2,175,490	1,437,850	1,525,930
Morgan	2,220,622	1,923,300	2,195,700	1,935,000	1,816,257	2,368,800	2,304,923	2,370,650	1,942,650	2,432,358
Morrow	3,969,866	2,796,490	2,310,680	1,696,020	2,255,210	2,745,410	2,323,896	1,811,375	856,191	1,669,270
Muskingum	3,830,040	2,908,100	2,874,550	2,632,780	2,629,010	3,513,910	2,832,165	3,258,748	2,648,795	2,892,991
Noble	1,144,560	1,104,354	1,426,800	1,142,926	964,400	1,259,315	1,067,016	1,000,100	1,090,089	1,186,620
Ottawa	8,200	2,000	8,000	2,200	3,800	5,700	1,400	7,400	600	5,800
Paulding	....	5,000	....	....	2,190	1,700	14,243	1,700	4,920	5,300
Perry	3,740,720	3,543,217	3,523,820	2,988,770	2,654,900	3,835,460	3,650,810	3,437,350	2,751,630	3,033,916
Pickaway	3,380,040	3,326,967	3,746,290	1,962,860	1,934,100	2,244,200	587,913	452,700	543,050	378,500
Pike	2,497,459	1,633,920	2,434,970	1,715,964	1,919,798	2,773,350	2,680,680	1,917,743	1,771,050	1,522,140
Portage	5,589,405	5,043,600	4,779,116	5,128,260	4,257,770	3,636,760	3,451,854	3,698,352	3,208,740	3,476,300
Preble	5,480,775	6,003,590	6,472,252	5,240,950	4,093,285	5,992,850	4,131,015	3,406,290	3,581,750	3,943,100
Putnam	25,400	5,500	21,750	....	9,500	2,800	6,000	2,600	....	5,000
Richland	3,562,310	2,979,240	2,849,100	2,817,150	2,645,961	3,540,495	8,341,551	2,745,460	1,748,700	2,775,207
Ross	2,733,550	3,136,759	3,565,257	2,127,550	1,751,290	3,608,580	2,156,360	1,335,642	1,352,850	1,608,255
Sandusky	1,081,300	506,750	760,860	300,762	180,900	658,700	434,100	284,400	272,085	181,226
Scioto	2,951,490	2,520,090	2,570,700	3,092,974	2,836,000	3,033,800	1,984,505	1,526,890	1,913,312	1,607,544
Seneca	4,912,000	4,194,650	4,013,286	3,265,950	2,196,480	3,606,934	2,390,500	1,900,840	1,458,930	2,623,150
Shelby	1,407,913	1,164,850	1,417,250	690,029	662,200	1,476,300	582,510	361,570	533,670	731,750
Stark	5,775,427	4,560,690	4,224,185	3,899,847	3,301,750	3,253,025	3,535,770	2,268,469	2,157,900	2,695,854
Summit	3,769,560	3,497,400	3,020,780	3,578,950	3,207,000	3,445,990	2,781,627	2,337,740	1,613,981	165,105
Trumbull	3,953,256	5,072,139	3,218,700	3,532,714	3,322,727	3,251,152	3,320,628	2,915,942	2,427,010	3,533,860
Tuscarawas	1,675,091	1,554,318	1,564,780	1,380,500	1,095,122	1,706,576	1,573,450	1,209,200	1,054,430	1,117,375
Union	740,500	777,300	511,196	234,100	455,405	579,575	168,350	62,900	84,050	153,900
Van Wert	1,400	....	....	....	2,000	....	1,000	1,600	....	600
Vinton	1,020,000	1,115,500	1,288,875	1,108,500	1,121,410	1,997,590	1,964,350	1,407,600	1,294,950	1,589,939
Warren	2,026,460	1,398,140	1,399,350	825,548	65,300	953,600	870,900	562,750	392,150	837,200
Washington	3,653,652	3,456,730	3,400,987	3,495,070	3,997,240	5,170,510	4,617,730	3,375,175	3,294,850	4,260,500
Wayne	8,154,470	6,537,870	6,900,825	6,036,462	5,895,201	5,516,148	4,503,060	3,560,698	3,152,538	4,128,876
Williams	197,000	164,200	93,300	128,200	79,825	235,000	175,550	63,300	116,700	235,340
Wood	228,200	387,100	232,800	366,120	403,500	725,940	518,300	453,400	319,300	333,380
Wyandot	1,207,725	1,045,310	1,027,450	696,400	643,900	710,500	574,750	217,516	153,700	348,480
Totals	202,709,698	189,857,217	182,894,581	153,816,702	149,752,554	178,926,948	152,190,375	123,146,474	102,383,910	126,297,999
Total cost	$1,932,792	$1,784,788	$1,764,445	$1,665,610	$1,482,390	$2,299,136	$1,543,915	$1,481,583	$1,168,657	$1,529,088

Average number of pounds for ten years, 156,197,646.
Average cost for ten years, $1,665,240.

COMPARATIVE TABLE SHOWING PRODUCTION OF WOOL IN OHIO FOR TEN YEARS—Concluded.

Counties.	Pounds Shorn.									
	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.	1895.
Adams	25,560	28,105	34,170	38,247	44,800	43,672	49,291	39,021	37,878	60,870
Allen	64,999	62,852	58,951	85,797	122,746	104,950	101,433	77,012	76,141	93,728
Ashland	145,780	206,233	199,220	212,363	209,384	245,615	312,500	169,597	203,188	189,455
Ashtabula	39,366	42,671	53,096	60,939	84,189	86,941	95,031	90,381	77,075	11,799
Athens	240,263	194,092	223,510	266,529	241,937	271,610	244,080	196,726	215,524	292,028
Auglaize	28,713	39,604	41,392	51,515	52,137	54,598	58,756	49,405	53,662	68,827
Belmont	340,074	407,696	340,595	380,797	407,023	426,580	387,709	348,934	359,787	452,450
Brown	32,945	33,552	35,737	52,579	56,980	60,240	53,060	49,705	41,270	58,635
Butler	30,436	35,948	38,295	37,169	46,408	36,797	37,791	25,832	25,615	37,997
Carroll	314,190	293,894	285,676	336,840	329,045	343,829	324,576	326,937	314,263	380,926
Champaign	84,601	93,830	89,522	119,319	128,017	126,343	126,897	128,211	104,085	194,617
Clark	107,295	355,472	99,579	114,949	112,222	99,718	153,424	120,487	142,509	205,945
Clermont	13,976	12,079	19,053	28,776	34,340	26,691	33,582	25,554	24,811	27,456
Clinton	99,304	98,868	104,528	112,815	138,618	122,750	132,597	97,317	115,515	4,615
Columbiana	125,685	112,175	122,708	167,791	169,436	181,462	176,251	155,007	170,504	201,560
Coshocton	523,301	505,728	456,812	473,131	445,601	428,255	352,528	404,367	463,164	533,410
Crawford	227,544	214,644	208,226	220,206	228,378	177,393	220,367	199,646	201,365	220,954
Cuyahoga	21,391	22,705	29,596	28,457	26,949	30,982	31,282	29,773	27,188	31,680
Darke	30,473	22,953	29,285	31,171	39,620	39,960	38,301	28,031	24,013	36,032
Defiance	78,404	66,422	70,421	78,156	80,503	76,257	74,626	62,783	71,401	72,826
Delaware	214,661	181,386	234,583	243,245	230,806	252,780	221,301	186,144	210,081	262,103
Erie	49,261	42,225	59,474	67,367	64,621	69,572	63,289	59,675	65,514	75,952
Fairfield	59,366	59,561	66,819	71,324	77,127	87,511	91,616	56,350	58,098	81,434
Fayette	30,328	36,189	35,958	49,850	51,171	33,199	37,537	49,655	44,315	69,980
Franklin	32,632	42,351	50,781	49,988	43,255	52,330	57,571	46,748	44,271	54,448
Fulton	79,895	70,011	82,581	105,710	119,624	102,542	127,934	110,902	96,385	96,278
Gallia	34,083	36,688	43,173	53,338	57,537	61,700	72,843	76,464	61,945	74,951
Geagua	19,823	27,535	39,415	49,863	53,826	63,852	82,311	71,056	66,335	73,155
Greene	100,203	82,988	98,246	123,998	104,916	107,164	94,138	99,616	91,028	131,087
Guernsey	385,649	358,805	377,626	443,275	446,661	432,097	398,901	355,240	378,170	439,496
Hamilton	5,343	6,210	3,039	6,605	5,380	3,379	6,024	6,272	....	6,938
Hancock	198,069	167,824	170,155	216,779	197,056	192,938	194,200	171,988	155,955	201,755
Hardin	130,451	153,483	137,012	141,815	158,254	140,341	155,790	45,158	154,248	173,476
Harrison	625,140	676,202	574,998	595,545	570,575	540,864	580,209	562,095	539,373	676,295
Henry	30,745	33,062	36,548	40,734	47,672	44,841	49,356	41,028	36,505	52,332
Highland	59,008	54,992	75,950	115,618	105,851	110,726	109,426	84,205	87,176	114,380
Hocking	75,656	77,642	69,505	88,924	76,176	87,109	86,158	83,317	97,560	102,325

Holmes	80,997	82,173	88,410	107,969	118,367	123,153	142,832	118,686	148,219	148,645
Huron	321,771	317,839	310,231	351,575	313,015	354,720	283,336	284,424	275,803	297,408
Jackson	18,617	24,159	25,619	35,414	32,678	41,820	41,888	44,014	61,257	65,153
Jefferson	264,193	227,873	279,106	324,503	313,546	335,548	314,497	310,654	290,035	354,508
Knox	674,802	670,670	531,337	636,745	487,947	503,681	498,445	457,119	460,255	529,881
Lake	14,873	18,053	14,809	29,504	30,708	25,981	24,688	32,918	38,138	38,457
Lawrence	3,163	3,323	5,681	6,772	9,440	5,681	11,348	10,165	11,131	12,085
Licking	525,813	566,531	594,251	519,917	445,798	534,616	543,343	470,768	527,657	584,445
Logan	148,083	161,867	159,094	175,368	148,441	206,580	176,567	237,135	155,657	200,477
Lorain	78,496	94,754	106,101	130,316	128,508	118,142	118,695	115,431	125,062	126,229
Lucas	10,228	8,314	9,639	10,971	14,342	15,618	13,416	14,290	12,426	16,651
Madison	70,527	49,084	55,779	81,536	101,683	100,981	150,909	164,085	144,390	189,896
Mahoning	86,957	98,461	83,723	111,351	122,254	115,545	132,501	133,325	145,645	218,210
Marion	237,484	260,585	272,410	372,143	360,073	300,818	360,904	317,326	328,133	340,669
Medina	111,689	122,864	121,472	167,779	180,371	181,775	180,121	170,083	159,538	192,333
Meigs	141,077	125,147	118,421	155,792	138,332	143,300	143,743	132,118	137,653	216,315
Mercer	40,513	45,935	47,953	63,264	61,771	58,840	62,504	48,882	38,049	49,194
Miami	5,470	7,357	10,339	17,095	19,239	18,179	20,255	19,570	19,488	21,750
Monroe	54,792	56,006	60,734	77,222	87,280	94,018	92,446	70,686	71,673	108,718
Montgomery	6,936	9,360	9,999	8,249	8,932	11,711	15,400	11,713	7,916	13,033
Morgan	375,818	330,456	357,027	404,740	409,002	380,376	339,835	312,424	334,887	435,234
Morrow	390,846	423,541	389,462	367,592	348,507	370,108	348,115	341,632	322,291	368,913
Muskingum	487,430	461,199	459,276	541,340	500,502	458,708	450,004	441,585	472,490	540,753
Noble	293,441	280,199	298,045	343,522	292,775	302,211	258,796	232,378	243,588	343,803
Ottawa	24,287	23,954	28,681	27,304	24,397	23,935	28,259	27,160	27,860	33,038
Paulding	32,860	32,370	38,192	47,429	40,518	35,963	35,192	24,015	19,153	29,651
Perry	142,103	133,946	128,001	151,056	153,238	144,170	143,651	131,731	156,250	196,777
Pickaway	27,346	30,548	51,701	40,489	50,416	59,604	35,951	38,315	45,628	71,549
Pike	17,294	10,007	13,667	16,693	20,212	16,311	20,547	21,761	22,435	27,616
Portage	81,813	89,983	99,099	120,195	141,814	126,665	122,835	118,615	120,350	155,640
Preble	23,581	19,050	20,595	26,399	32,247	34,575	39,887	31,584	33,159	35,359
Putnam	42,325	45,510	50,618	57,420	64,454	43,257	53,571	49,363	34,845	55,330
Richland	216,985	182,576	180,113	205,737	192,620	192,336	218,367	164,947	163,781	215,003
Ross	13,874	26,820	30,261	32,291	46,451	67,999	55,115	53,111	46,679	68,542
Sandusky	63,532	73,734	74,499	75,898	81,806	82,044	83,572	85,016	65,936	105,756
Scioto	4,725	5,018	5,025	7,225	5,511	5,554	5,768	5,508	6,297	8,654
Seneca	158,573	179,776	192,198	522,593	182,681	177,127	174,341	145,419	162,462	204,117
Shelby	22,383	20,899	26,383	39,876	39,859	40,480	36,368	29,130	28,905	47,185
Stark	76,755	80,752	85,235	102,874	117,935	124,765	136,455	112,335	130,354	158,771
Summit	28,682	29,015	34,360	49,286	51,532	40,961	48,618	44,759	41,179	59,435
Trumbull	67,197	71,316	80,880	109,574	137,088	134,121	143,291	135,160	140,458	179,270
Tuscarawas	142,171	144,615	143,737	155,922	158,758	155,420	151,658	142,789	151,606	202,810
Union	150,453	182,522	178,228	216,262	252,422	252,370	203,216	194,238	190,750	234,934
Van Wert	59,034	41,512	63,594	72,707	83,240	61,674	74,896	50,665	43,495	74,037
Vinton	79,719	92,981	96,741	105,460	90,083	80,062	104,481	98,716	110,548	136,158
Warren	20,622	27,879	34,333	46,366	50,763	64,112	70,676	59,385	61,164	69,788
Washington	141,076	144,973	162,764	191,940	101,682	198,705	199,010	183,583	296,001	267,207
Wayne	99,838	90,103	107,773	127,400	131,031	125,543	133,238	116,101	107,401	136,397
Williams	161,361	164,225	174,932	163,905	157,452	153,175	166,295	136,522	135,849	149,616
Wood	45,447	52,661	61,112	71,556	99,065	75,379	75,567	102,511	84,074	97,599
Wyandot	323,912	320,515	413,367	326,353	313,215	331,047	286,275	352,924	368,432	375,920
Totals	11,426,576	11,762,687	11,681,242	13,512,413	12,992,842	13,017,052	13,104,374	11,877,503	12,262,439	14,671,104

Average for ten years, 12,630,823 pounds.

TABLE SHOWING THE NUMBER OF HORSES IN OHIO FOR TEN YEARS, INCLUDING CITIES AND RURAL DISTRICTS.

Counties.	Number of Horses.									
	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.
Adams	4,804	4,723	4,641	4,809	4,927	4,622	4,503	4,426	4,670	4,927
Allen	9,429	8,945	9,087	8,981	8,638	8,727	8,225	8,397	8,894	9,174
Ashland	7,471	7,768	7,571	7,180	7,020	7,104	6,999	7,009	6,698	7,045
Ashtabula	9,614	9,609	9,906	9,186	9,027	9,038	9,370	9,838	10,424	10,960
Athens	4,495	5,168	4,438	4,375	4,352	4,170	4,543	4,637	4,918	5,063
Auglaize	8,729	8,626	8,541	8,701	8,489	8,178	7,869	8,101	8,648	8,883
Belmont	8,112	8,094	8,508	8,597	8,689	7,551	8,228	8,480	8,755	9,239
Brown	6,362	459	6,420	6,542	6,504	6,714	6,591	6,567	7,214	7,014
Butler	10,784	10,435	10,440	10,447	10,092	10,350	10,472	10,677	10,841	11,349
Carroll	4,340	4,521	4,365	4,197	4,301	4,407	4,390	4,599	4,732	5,189
Champaign	10,640	10,400	10,453	10,429	10,102	10,143	9,969	10,080	10,512	11,301
Clark	11,213	10,915	10,899	10,593	11,171	11,412	11,004	11,371	11,709	11,661
Clermont	6,745	6,431	6,606	6,593	6,867	7,078	6,644	6,676	7,351	7,292
Clinton	9,347	9,459	9,568	9,356	8,890	9,022	8,755	9,002	9,576	9,773
Columbiana	9,700	9,927	10,024	9,489	9,784	9,389	9,384	9,503	9,494	9,567
Coshocton	6,127	5,720	5,968	5,814	5,763	6,013	6,607	6,904	7,018	7,524
Crawford	8,768	8,647	8,713	8,521	8,614	8,391	8,232	8,537	8,374	8,406
Cuyahoga	18,858	17,424	17,598	18,032	21,335	18,158	18,729	18,624	19,443	19,931
Darke	17,150	16,347	16,534	15,617	15,691	15,044	14,552	14,590	14,373	15,061
Defiance	6,582	6,078	6,352	6,261	6,131	5,812	5,941	6,460	6,559	6,671
Delaware	8,176	8,139	7,727	7,700	7,392	6,881	7,310	7,194	7,578	8,400
Erie	5,598	5,424	5,660	5,560	5,674	5,497	4,789	5,385	5,553	5,600
Fairfield	10,223	9,761	9,666	9,591	9,465	9,669	10,019	10,117	9,562	9,807
Fayette	9,486	9,033	9,289	8,979	8,888	9,059	8,782	9,120	9,600	9,763
Franklin	14,978	14,808	14,804	14,165	14,613	14,571	14,504	14,697	15,551	15,862
Fulton	6,950	6,883	7,269	7,362	7,744	6,915	7,112	7,013	6,552	7,376
Gallia	4,474	4,486	4,520	4,690	5,178	4,473	4,892	4,682	4,968	5,315
Geauga	5,102	5,134	5,248	5,262	5,258	5,232	5,345	5,351	5,707	5,821
Greene	10,028	9,659	9,757	9,878	9,504	9,958	9,734	10,229	10,532	10,918
Guernsey	5,007	4,928	5,094	5,463	5,210	5,359	5,427	5,676	6,390	6,079
Hamilton	16,115	16,483	16,498	16,625	17,044	16,847	17,799	18,169	18,782	19,527
Hancock	10,498	10,863	10,468	10,395	10,149	10,225	10,200	10,544	10,612	10,913
Hardin	8,916	8,304	8,130	7,694	7,580	7,793	6,960	7,361	7,646	8,177
Harrison	5,092	4,854	4,988	4,827	5,081	4,741	4,671	4,798	4,943	5,274
Henry	7,157	6,833	7,085	6,987	6,728	5,578	6,678	6,481	6,683	6,891
Highland	8,390	8,166	8,437	8,538	8,379	8,177	8,027	8,284	8,518	9,252
Hocking	3,571	3,583	3,568	3,555	3,637	3,757	3,565	3,404	3,743	4,046
Holmes	6,825	7,292	7,132	6,786	6,594	6,807	6,851	6,491	6,303	6,408

Huron	8,111	7,907	7,855	7,877	7,871	10,056	8,183	8,171	8,278	8,460
Jackson	3,218	3,214	3,441	3,603	3.606	3,590	3,462	3,549	3,609	3,692
Jefferson	5.661	5,580	5,595	5,369	5,430	5,701	5,769	6,097	6,307	6,212
Knox	8,166	7,873	7,735	7,148	6,933	7,693	7,304	7,730	8,059	8,592
Lake	4,476	4,412	4,428	4,205	4,346	4,286	4,830	4,262	4,560	4,614
Lawrence	3,635	3,805	3,767	3,869	3,730	3,647	3,523	3,586	3,668	3,685
Licking	12,272	13,646	12,378	12,188	12,099	12,198	12,138	12,571	12,825	13,915
Logan	9,876	9,276	9,768	9,555	9,187	9,188	8,346	8,695	8,711	9,115
Lorain	9,410	9,132	9,172	9,101	8,938	8,803	9,097	9,099	9,521	8,699
Lucas	8,829	9,504	9,682	9,751	9,773	9,549	9,124	9,329	9,202	8,826
Madison	9,478	9,501	9,644	9,470	9,116	8,973	9,404	9,266	9,671	10,392
Mahoning	6,053	8,876	8,515	8,207	8,144	8,515	8,263	8,493	8,963	9,029
Marion	7,761	7,656	7,683	7,339	7,204	7,169	7,342	7,534	7,543	8,142
Medina	9,036	8,449	8,179	8,038	8,195	8,108	7,721	8,000	8,086	8,326
Meigs	4,261	4,506	4,603	4,792	5,028	5,197	5,304	5,345	5,407	5,679
Mercer	9,794	9,696	9,430	9,217	8,769	8,402	7,939	8,278	8,246	8,295
Miami	10,689	11,328	11,542	11,175	10,634	11,396	10,367	11,450	11,217	11,289
Monroe	4,925	5,036	5,268	5,030	5,464	5,174	4,754	4,965	5,171	5,965
Montgomery	15,719	15,698	16,140	15,117	16,156	16,310	15,759	16,757	15,797	16,143
Morgan	4,593	4,578	4,560	4,867	4,751	4,659	4,754	4,920	5,087	5,571
Morrow	7,503	7,350	7,388	7,270	7,353	7,734	7,262	7,200	7,342	7,561
Muskingum	9,090	9,092	8,903	9,204	8,938	8,967	9,374	9,739	10,075	10,627
Noble	4,440	4,392	4,583	4,602	4,256	4,048	4,183	4,183	4,532	4,626
Ottawa	5,210	5,564	5,395	5,683	5,156	5,413	5,265	5,255	5,333	5,428
Paulding	6,426	6,478	5,923	5,369	5,028	5,176	4,666	4,286	4,826	4,640
Perry	6,097	5,799	5,824	5,681	5,531	5,551	5,487	5,660	5,973	6,301
Pickaway	9,602	9,837	9,302	9,328	9,294	9,561	9,559	9,972	10,283	10,502
Pike	4,032	3,818	3,947	3,903	3,857	4,236	4,265	4,029	4,161	4,317
Portage	8,550	8,622	8,079	8,172	7,914	7,884	7,714	7,961	8,264	8,444
Preble	9,972	9,983	9,937	9,850	9,950	9,874	9,310	9,072	9,498	9,518
Putnam	8,874	8,987	8,953	8,572	8,209	8,151	8,470	8,433	8,566	8,821
Richland	9,225	9,203	8,935	8,909	8,838	8,594	8,698	8,671	8,715	9,030
Ross	9,659	10,236	10,255	9,982	9,990	10,522	10,477	10,934	11,347	12,152
Sandusky	8.618	8,760	8,686	8,376	7,984	8.434	8,430	8,325	8,292	9,182
Scioto	5,449	5,458	5,314	5,375	5,251	5,593	5,476	5,153	5,227	5,312
Seneca	10,001	9,484	9,207	9,202	8,788	9,145	8,971	9,083	9,505	9,386
Shelby	8,975	9,014	9,157	9,034	8,624	8,595	8,526	8,467	8,371	8,610
Stark	13,131	14,501	14,836	14,564	14,429	14,569	13,975	14,218	14,728	15,443
Summit	9,468	8,129	8,985	9,108	9,183	9,073	9,352	9,247	9,444	9,523
Trumbull	11.309	10,229	10,458	10,325	10,039	10,584	10,564	10,659	11,247	11,941
Tuscarawas	8,072	7,350	7,417	7,282	7,272	7,264	7,575	7,872	7,945	8,483
Union	8,067	8,459	8,190	8,023	7,692	7,630	7,277	7,408	7,546	7,704
Van Wert	8,651	8,422	8,184	8,748	8,345	8,250	7,789	8,571	8,370	8,901
Vinton	2,290	2,295	2,347	2,407	2,375	2,504	2,578	2.632	2,659	2,814
Warren	9,403	9,439	9,650	9,238	9,274	9,143	9,222	9,209	9,464	9.742
Washington	6,942	7,120	7,107	7,389	7,605	7,692	7,476	7,839	7,749	8,110
Wayne	12,191	12,267	11,911	11,500	11,068	10,821	10,888	11,115	11,165	11.217
Williams	7,447	6,931	6,579	6,489	6,165	6,256	6,377	6,277	6,192	6,672
Wood	11,565	11,278	10,808	11,744	10,874	11,256	10,933	11,731	11,640	11,159
Wyandot	8,078	7,705	7,407	7,534	7,339	7,150	6,971	6,962	7,227	7,216
Totals	730,156	726,204	725,024	716,558	712,500	711,146	704,165	717,734	735,050	759,482

TABLE SHOWING THE NUMBER OF CATTLE IN OHIO FOR TEN YEARS, INCLUDING CITIES AND RURAL DISTRICTS.

Counties.	Number of Cattle.									
	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.
Adams	10,346	10.467	10,615	10,432	10,603	10,384	9,716	9,114	7,852	8,354
Allen	16,014	15,690	17,614	15,799	14.861	15,177	13,640	13,224	12,345	12,151
Ashland	14,475	15,758	15,349	14,650	14.825	14,726	14,843	13,392	11,942	12,317
Ashtabula	30,385	32,186	32,201	28,882	30,024	28.448	27,478	26,726	23,961	23,855
Athens	9,597	10,069	10.370	11,070	10,320	11,217	12,099	11.218	9,761	9,175
Auglaize	16,426	16,972	17,168	16,232	15,901	15,224	14,587	13,224	12,692	13,265
Belmont	17,981	17,221	18,208	19,550	20,749	21,850	20,331	19,127	17,429	17,055
Brown	12,159	12,804	12,897	12,979	13.407	13.112	12,306	10,784	10,843	10,617
Butler	15,967	16,820	17,011	16,622	16.045	15,691	14,668	13,711	13,096	12,842
Carroll	12,030	12,939	13.654	12,941	18.009	13.248	12,785	11,814	10,961	11,067
Champaign	17,843	18,297	20,258	20,020	18,695	17.928	17,168	14,958	14,058	13,955
Clark	17,798	28,474	19,469	18,281	19.920	18,453	17,866	15,789	14,758	14,729
Clermont	10,331	9,987	10.435	10,657	9.761	10.567	9,500	9,081	8,950	9,624
Clinton	15,604	15,957	17,250	16,390	17,067	15,540	14,093	13,386	12,010	12,538
Columbiana	19,835	21,727	21,839	20.501	22,507	22.072	20.005	19,456	18,243	17,705
Coshocton	16,213	16,796	18,306	17,531	16,008	16,728	17,659	15.823	13,952	14,376
Crawford	16,837	16,164	17,080	16.532	16.933	17,348	16,018	15,229	14,370	14,353
Cuyahoga	14,989	15,977	16.615	16,247	16,322	16,631	16,142	15,768	15,642	15,293
Darke	23,671	25,269	26,928	25,889	24,319	23.039	22,213	20,591	19,041	19,694
Defiance	11,614	10,358	10,519	11,816	11,284	9,957	9,958	9,485	9,299	9,782
Delaware	19,047	20,074	21,196	19,133	17.362	16,669	15,929	15,766	13,710	13,283
Erie	7,732	7.762	8.418	7,911	7.902	7,873	6,934	7,223	7,057	6,800
Fairfield	21,888	21,140	22,346	21,930	20,766	21.365	19.474	17,210	16,400	16,793
Fayette	19,765	18,739	20,070	19,819	19,719	20.007	17,049	16.931	15.298	13,502
Franklin	20,242	20,763	21.037	20,767	19.672	18,662	18,427	17,587	17,459	16,972
Fulton	16,313	17,524	18,030	17,657	17,675	14,335	14,085	12,603	11,029	12,548
Gallia	9,843	10,366	11,491	11,741	13.179	11.956	11,900	10,328	8,812	9,237
Geauga	20,426	21,471	21,725	21,570	21,599	20,263	20,291	18,898	17,103	16,067
Greene	18,523	17,656	18,956	18.678	17.622	17,126	15,341	14,804	13.926	14,508
Guernsey	13,457	13.161	13,639	13,985	13,948	15,351	14,532	13,737	12,938	11,919
Hamilton	16,635	17,739	17,907	17,700	18,796	17.483	17,774	17,665	18,421	18,595
Hancock	23,370	25,100	24,472	23,179	22,154	22,223	20,698	19,716	18,429	18,689
Hardin	19,017	19,233	19,480	18,428	17.213	17,251	14,927	13,793	12,629	12,067
Harrison	10,628	10,568	11,415	11,222	12,204	12,035	11,934	11,497	10,642	9,944
Henry	13,433	14,294	15,427	14,675	14,173	12.895	12,111	11,191	11,388	11,380
Highland	20,463	20,046	20,462	20,189	19,921	18,774	16,577	15,639	14,401	14,514
Hocking	8,884	9,324	9,414	9,772	9.917	9,711	8,778	7,878	7,757	8,132
Holmes	16,094	19,271	17,978	17,862	17,108	18,241	17,486	15,455	13,234	13,980

Huron	14,132	15,138	15,685	15,214	14,326	14,779	14,224	13,026	12,063	12,435
Jackson	10,077	9,724	10,349	11,051	11,939	11,273	10,745	9,282	8,672	8,871
Jefferson	10,876	11,444	11,962	12,035	13.597	12,773	10,692	11,450	10,479	9,815
Knox	18,243	18,449	20,317	17,625	16,362	18,807	17,136	15,862	14,648	14,363
Lake	7,479	7,680	7,727	7,588	7,572	7,189	6,969	6,444	6,015	6,026
Lawrence	8,167	8,734	9,607	9,418	9,839	9,320	8,377	7,642	7,120	6,544
Licking	28,674	29,828	30,307	28,430	26,757	26,760	25,370	22,868	21,233	22,356
Logan	17,629	18,437	20,257	19,772	19,144	18,828	17,020	15,205	12,781	13,324
Lorain	21,224	22,170	23,903	23,163	23,410	22,139	21,185	20,138	20,262	19,107
Lucas	9,876	10,268	10,140	10,039	9,744	9,317	8,588	8,189	7,819	7,813
Madison	20,936	19,876	24,032	24,111	21,223	19,470	17,498	24,308	16,448	15,490
Mahoning	16,429	19,736	19,589	18,925	17,578	18.384	16,700	15,942	14,858	14,501
Marion	15,223	15,681	17,333	16,693	14,781	15,185	15,232	13,264	12,243	11,779
Medina	17,131	17,891	18,134	17,011	18.043	17,394	15,320	15,631	14,871	15,240
Meigs	9,452	9,688	10,010	10,696	11,277	10,748	10,778	10,280	9,159	8,912
Mercer	18,135	18,763	18,125	17,449	16,586	15,713	15,285	14,343	13,455	14,025
Miami	14,205	15,928	16,064	15,370	14,305	14,523	13,690	12,961	12,120	12,455
Monroe	11,771	11,555	12,203	12,570	14,040	12,460	13,115	11,866	10,440	9,786
Montgomery	18,897	19,738	20,915	21,289	20,540	19,791	19,444	18,376	16,048	17,048
Morgan	11,999	11,918	13,043	13,572	13,632	13.308	13,098	12,371	11,813	11,128
Morrow	15,292	15,294	15,837	15,017	14,106	15,035	14,847	13,285	11,782	11,562
Muskingum	23,023	23,915	24,525	25,389	24,663	24,316	24,002	22,494	22,069	21,363
Noble	14,866	13,864	14,581	14,834	13,904	14,312	14,206	12,613	11,436	10,400
Ottawa	8,198	8,960	9,040	9,155	9,008	8,792	7,968	7,491	7,396	7,634
Paulding	7,296	8,342	8,369	8,134	7,711	6,459	5,727	4,901	5,016	5,345
Perry	14,471	13,776	13,791	15,582	15.601	15,318	14,053	13,039	11,870	12,399
Pickaway	21,824	20,086	22,990	22,087	21,967	20,121	18,678	18,244	17,210	17,737
Pike	6.567	6,418	6,782	6,394	6,197	6,143	5,623	4,849	4,595	5,131
Portage	21,339	22,665	22,266	22,656	21,076	21,311	20,181	19,532	18,076	17,033
Preble	17,035	18,367	18,824	17,719	17,440	16,086	15,281	14,072	13,199	13,330
Putnam	17,672	19.328	19,704	18,788	17,194	16,822	16,118	14,354	13,267	13,531
Richland	18,650	18,906	18,817	17,985	17,281	17,095	16,063	15,039	13.291	13,903
Ross	19,469	20,744	22,299	22,662	21,793	21,124	19,197	17,482	16,918	16,916
Sandusky	14,212	14,966	15,800	15,396	13,491	14,289	13,362	12,977	11,205	12,386
Scioto	9,057	8,854	9,200	8,925	8,406	8,815	8,858	7,624	7.678	7,995
Seneca	18,813	19,423	19,292	17,063	16,203	17,133	15,206	14,215	15,100	15,483
Shelby	15,500	16.447	16,096	16,147	15,099	16,091	14,730	13,334	13,195	14,159
Stark	22,303	26,212	26,580	27,542	28,702	28,652	26,352	25,383	24.048	24,692
Summit	19,510	20,067	20,585	20,154	20,929	21,465	20,250	19,287	17,644	16,848
Trumbull	26,849	29,922	30,676	31,628	32,511	32,350	31,500	29,374	26,897	26.089
Tuscarawas	20,485	20.230	20,720	21,091	20,826	21,139	20,400	19,579	18.796	19,277
Union	15,879	16,544	17,738	17,596	14,834	15,222	14,014	12,540	11,182	11.069
Van Wert	13,574	12,761	13,127	13,672	12,648	12,198	11,278	10,684	9.413	10,522
Vinton	6,193	5,988	6,031	6,407	6,685	6,646	6,685	5,766	5,350	5,475
Warren	14,551	15,261	18,072	16,851	17,373	15,524	13,425	12,194	11.569	11.537
Washington	14,591	14,629	15,333	16,934	17,413	17,771	17,236	15,884	13,772	13,798
Wayne	23,758	25,348	25,500	25,210	25,480	25,352	24,960	22,730	20.615	20.720
Williams	14,390	14,923	14,454	14,136	13,530	12,244	12,461	11,259	10,122	11,009
Wood	19,349	20,869	20,948	20,874	20,044	17,909	17,498	14,730	15.807	14,974
Wyandot	13,542	14,406	14,826	14,348	13,091	14,200	13,304	11,440	11,191	10,403
Totals	1,404,688	1,464,324	1,509,754	1,481,586	1,458,391	1,427,661	1,351,251	1,265,664	1,174,094	1.175,475

TABLE SHOWING THE NUMBER OF MULES IN OHIO FOR TEN YEARS.

Counties.	Number of Mules.									
	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.
Adams	233	234	218	223	193	190	181	189	189	228
Allen	108	99	92	85	94	102	112	98	103	98
Ashland	134	85	83	79	78	66	55	54	56	58
Ashtabula	32	26	20	25	40	35	42	41	42	43
Athens	87	123	113	95	141	119	133	170	165	177
Auglaize	148	102	113	111	118	114	133	148	171	175
Belmont	316	502	428	368	440	374	313	370	375	386
Brown	332	322	274	229	201	199	209	213	210	238
Butler	514	508	521	433	404	472	450	453	482	537
Carroll	84	74	81	67	59	63	72	62	73	75
Champaign	332	295	222	219	151	169	148	143	153	164
Clark	475	392	375	276	232	201	190	299	211	213
Clermont	565	491	566	534	520	489	546	569	604	645
Clinton	507	456	380	344	288	296	310	322	328	354
Columbiana	189	142	103	73	71	62	66	85	77	87
Coshocton	157	162	166	139	128	159	159	111	103	110
Crawford	145	141	128	113	97	69	68	79	67	86
Cuyahoga	106	62	59	63	42	49	57	114	85	129
Darke	377	384	317	327	285	287	280	317	344	403
Defiance	62	49	58	70	71	59	59	75	82	87
Delaware	159	132	96	90	260	57	57	55	55	63
Erie	11	16	14	9	13	15	7	22	17	26
Fairfield	175	148	170	138	119	130	124	134	129	120
Fayette	458	310	269	267	197	174	166	152	179	198
Franklin	297	160	160	103	131	113	101	131	121	131
Fulton	30	22	30	30	33	27	30	24	18	30
Gallia	170	166	178	136	145	207	207	234	264	246
Geauga	33	26	24	35	29	26	30	32	39	55
Greene	316	281	263	230	188	183	172	173	191	191
Guernsey	350	340	277	234	201	190	237	219	240	191
Hamilton	1,014	935	1,017	1,014	1,242	1,112	1,107	1,271	1,359	1,448
Hancock	66	50	63	61	71	83	80	99	94	105
Hardin	113	106	95	72	77	88	83	101	129	155
Harrison	103	121	57	54	75	66	83	53	61	87
Henry	53	82	78	77	77	79	89	73	86	96
Highland	306	300	105	69	54	64	60	54	49	42
Hocking	70	64	56	56	61	66	53	67	72	77

Holmes	59	54	375	190	225	219	214	207	235	265
Huron	88	74	78	60	62	49	58	95	92	87
Jackson	806	764	768	762	855	836	820	830	795	808
Jefferson	342	361	364	237	163	186	255	195	188	180
Knox	182	140	126	124	109	114	116	115	110	111
Lake	13	4	13	8	14	5	9	13	15	26
Lawrence	408	510	491	537	519	546	491	494	515	545
Licking	168	169	143	147	112	101	112	100	116	126
Logan	143	121	103	89	79	81	74	84	71	72
Lorain	22	40	36	33	30	50	38	76	41	33
Lucas	47	38	64	73	51	98	116	137	144	118
Madison	284	284	302	210	191	225	240	254	234	239
Mahoning	110	97	97	81	78	77	84	104	75	86
Marion	161	175	169	167	137	186	123	114	131	124
Medina	78	109	155	107	116	107	93	125	116	137
Meigs	224	233	214	200	188	210	218	222	258	289
Mercer	165	152	128	126	125	120	119	132	122	143
Miami	385	370	289	276	211	233	249	234	242	240
Monroe	56	59	69	68	66	59	48	88	77	62
Montgomery	353	280	276	243	227	246	215	227	240	255
Morgan	35	39	26	38	38	41	45	52	49	52
Morrow	68	66	71	45	42	42	53	62	54	50
Muskingum	178	183	182	161	163	153	167	171	162	201
Noble	35	34	34	44	40	52	60	57	45	44
Ottawa	45	48	50	47	33	39	40	14	10	20
Paulding	96	84	65	64	59	48	29	41	42	50
Perry	70	136	122	150	110	106	95	100	116	115
Pickaway	294	335	347	304	301	281	311	280	273	287
Pike	218	205	177	172	169	190	195	203	207	253
Portage	165	111	77	101	86	70	98	91	97	93
Preble	388	353	346	413	339	320	271	255	237	240
Putnam	79	63	54	61	59	55	64	50	78	74
Richland	162	140	150	133	137	114	121	142	147	151
Ross	220	181	156	158	153	132	156	149	203	182
Sandusky	39	44	38	47	47	50	43	53	60	78
Scioto	612	519	528	571	571	603	641	631	774	787
Seneca	142	130	74	91	58	69	61	63	89	90
Shelby	107	109	115	119	80	87	81	89	98	110
Stark	289	315	369	361	329	351	331	327	310	356
Summit	130	116	95	208	99	97	105	88	94	72
Trumbull	88	77	82	58	92	94	159	98	57	65
Tuscarawas	168	225	229	219	144	118	159	113	130	125
Union	102	104	95	75	45	45	30	36	31	49
Van Wert	234	202	191	221	186	168	156	152	141	178
Vinton	149	125	112	106	101	97	101	106	117	146
Warren	447	442	388	381	378	397	403	389	383	407
Washington	150	150	143	158	177	191	178	171	164	183
Wayne	308	281	227	180	152	167	181	182	182	171
Williams	55	58	42	30	31	40	57	57	65	68
Wood	94	78	64	71	66	94	80	101	130	130
Wyandot	159	131	105	124	61	60	76	55	51	71
Totals	18,047	16,990	16,283	15,197	14,530	14,373	14,508	15,030	15,445	16,398

TABLE SHOWING NUMBER OF SHEEP IN OHIO FOR TEN YEARS.

Counties.	Number of Sheep.									
	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.
Adams	6,448	5,404	5,890	7,598	8,857	9,068	8,784	7,997	7,421	8,533
Allen	15,848	16,380	17,487	19,205	20,732	20,707	19,193	17,705	14,365	16,676
Ashland	31,538	33,382	34,314	36,243	37,308	36,876	36,114	32,885	27,790	28,266
Ashtabula	6,606	8,829	10,972	12,693	14,735	16,575	19,188	18,374	17,737	20,201
Athens	39,278	41,739	42,075	46,063	47,649	46,086	43,879	40,478	33,264	34,310
Auglaize	6,738	7,163	8,614	10,128	11,551	12,011	11,811	9,568	8,580	10,307
Belmont	58,818	63,307	65,923	72,968	84,037	84,760	76,542	72,991	60,908	62,292
Brown	7,169	6,752	7,139	9,579	12,327	12,814	12,315	12,225	9,579	9,611
Butler	6,485	6,712	7,232	7,586	9,471	9,980	10,687	7,482	5,745	7,721
Carroll	49,074	51,575	50,675	52,082	57,992	59,301	62,660	60,888	53,090	58,566
Champaign	19,793	15,993	17,991	21.929	29,264	23,475	22,419	23,873	23,322	21,431
Clark	20,675	20,522	20,003	22,440	29,095	23,829	28,602	27,449	26,699	27,624
Clermont	3,022	3,654	4,375	6,742	8,067	7,713	7,383	6,647	5,629	7,208
Clinton	15,217	15,217	16,996	22,404	25,313	25,787	24,605	25,474	19,615	23,751
Columbiana	22,080	24,750	26,758	30,127	35,700	36,361	36,622	36,705	30,962	33,974
Coshocton	75,654	74,759	72,661	74,752	75,909	77,362	81,371	78,952	71,824	75,820
Crawford	39,555	42,133	40,976	42,153	45,952	45,257	34,768	42,534	36,786	41,043
Cuyahoga	3,911	4,711	5,496	6.344	6,838	7,119	7,022	6,757	6,055	6,348
Darke	4,532	4,549	6,144	7,338	7,717	7,754	6,753	6,870	5,219	5,793
Defiance	12,530	13,889	14,724	15,996	15,973	14,494	14,071	13,056	10,926	12,063
Delaware	42,664	37,711	38,526	45,189	46,228	44,578	44,202	42,646	39,259	41,644
Erie	9,427	9,908	10,691	11,942	12,909	12,934	10,943	12,575	11,343	12,890
Fairfield	11,736	12,055	13,780	15,456	16,673	18,443	16,925	16,736	12,714	13,993
Fayette	7,659	7,720	9,710	11,333	13,296	13,555	14,537	13.117	11,285	13,498
Franklin	8,444	9,624	10,507	11,422	12,558	12,761	11,953	11,042	10,221	10,838
Fulton	13,518	15,455	16,952	19,898	23,345	21,126	21,644	20,278	19,490	20,473
Gallia	10,658	9,092	9,144	11,210	13,517	13,930	15,425	14,788	13,710	13,946
Geauga	4,469	5,553	7,013	9,577	10,936	12,056	14,287	14,956	14,508	14,709
Greene	15,599	15,511	15,642	18,548	20,321	18,665	18,188	16,860	14,547	18,342
Guernsey	63,849	60,549	61,659	67,245	72,855	74,621	74,087	69,769	60,533	63,368
Hamilton	1,786	1,107	1,992	2,518	2,673	2,139	2,590	2.188	2,033	2,620
Hancock	34,189	36,130	36,428	38,265	38,764	36,400	35,355	33,086	30,595	33,587
Hardin	31,947	31,144	31,798	33,553	34,503	36,006	33,192	32,848	27,339	30,873
Harrison	95,406	91,171	94,425	96,304	103,812	104,134	103,803	100,162	89,339	92,134
Henry	5,776	6,926	7,748	8,156	9,080	8,722	8,628	8,787	7,438	8,318
Highland	17,456	13,327	14,690	19,975	25,466	25,591	23,817	21,075	17,770	18,693
Hocking	13,396	14,121	13,911	16,243	17,198	17,293	16,215	15,673	14,018	17,769
Holmes	24,428	23,733	23,705	25,190	29,802	31,245	30,336	27,926	23,737	25,198

Huron	45,977	48,254	47,172	52,417	57,582	53,312	53,931	53,508	46,985	46,321
Jackson	3,829	4,501	5,650	7,738	8,304	8,889	8,617	8,955	9,031	11,827
Jefferson	40,593	42,774	45,023	49,160	55,219	60,433	56,998	56,636	49,064	46,273
Knox	99,078	96,505	95,822	91,063	90,537	95,698	90,645	84,764	73,681	76,411
Lake	3,610	3,792	4,460	5,750	6,087	6,456	7,431	7,377	6,795	7,914
Lawrence	1,414	1,499	1,711	2,590	3,456	3,350	3,109	3,128	3,257	3,619
Licking	85,580	89,546	90,760	96,295	99,427	94,483	93,434	92,214	81,652	92,243
Logan	25,986	26,623	29,343	31,790	35,363	36,862	34,405	31,371	30,074	34,237
Lorain	15,518	16,272	18,774	22,914	25,437	26,753	27,280	24,447	21,677	25,019
Lucas	1,492	1,873	1,993	2,699	3,026	3,339	3,259	3,191	2,740	2,736
Madison	15,653	15,131	15,842	21,985	24,963	26,540	27,555	28,991	29,586	31,854
Mahoning	13,954	17,168	18,557	21,674	21,346	24,992	29,506	29,815	25,143	26,877
Marion	44,210	46,277	48,701	49,401	66,661	57,811	59,518	54,174	44,750	50,035
Medina	19,339	21,705	23 098	26,629	30,381	31,042	32,743	32,415	30,119	32,606
Meigs	25,364	24,350	22,593	26,627	29,923	30,263	30,244	28,357	25,956	27,775
Mercer	8,939	9.032	10,193	12,746	14,933	14,827	13,977	11,980	9,419	9,089
Miami	1,737	2,647	3,347	4,085	3,872	4,516	4,871	4,902	5,235	4,470
Monroe	9,641	9,109	9,326	13,420	16,397	17,735	17,826	16,441	12,5366	14,230
Montgomery	1,991	2,069	2,500	3,096	3,097	3,216	3,058	3,128	2,685	3,535
Morgan	59,973	55,758	54,973	62,039	69,100	68,079	65,214	59,079	51,736	54,892
Morrow	61,756	61,644	72,400	62,114	66,165	66,318	63,701	60,362	53,120	54,854
Muskingum	85,334	81,016	82,556	85,691	92,223	89,319	88,069	83,589	75,336	82,945
Noble	49,698	45,358	48,434	56,170	57,012	56,668	53,167	45,822	41,233	40,047
Ottawa	4,408	4,787	4,918	5,174	5,370	4,991	5,265	5,148	4,822	6,014
Paulding	7,436	6.938	8,095	8,912	9,676	8,626	6,929	6,034	4,559	5,242
Perry	25,346	26,038	28,265	29,497	32,360	29,087	27,497	25,817	24,339	27,715
Pickaway	6,063	6.027	6,886	8,899	11,223	10,625	9,994	9,471	8,777	9,969
Pike	3,762	3,704	4,089	4,525	4,450	4,602	4,991	3,890	3,896	5,909
Portage	13,249	15,343	16,982	20,883	23,790	25,446	25,406	26,989	23,607	25,332
Preble	3,866	5,031	5,290	6,081	6,567	7,599	7,702	7,190	5,741	7,144
Putnam	10,143	9,851	10,979	12,670	13,316	13,403	12,452	10,384	8.759	10,230
Richland	34,854	37,747	39,248	39,780	42,859	41,787	42,352	39,912	32,842	34,266
Ross	8,075	7.890	9,004	10,205	12,196	11,785	12,254	12,277	11,220	11,387
Sandusky	13,528	14,585	15,195	17,107	15,923	16,079	17,294	19,095	14,014	16,783
Scioto	1,128	1,767	1,809	2,067	2.059	1,964	1,762	1,814	1.727	2,341
Seneca	35,049	35,427	35,498	37,416	35,708	36,001	33,581	32,726	30,827	32,004
Shelby	4,573	4.300	7,848	7,545	7,177	8,295	8,385	7,287	6,172	6,814
Stark	11,194	15,283	16,565	19,971	22,386	24,829	25,680	26,230	23,453	26,215
Summit	4,588	5,416	6,722	7,560	9,140	9,312	9,526	9,986	8.871	9,935
Trumbull	12,206	13,367	16,540	21,993	25,130	27,658	29,016	29,893	62,922	30.041
Tuscarawas	26,276	26.686	27,644	29,198	32,772	33,977	33,801	32,639	28,681	32,781
Union	32,165	29,830	32,485	38,553	43,180	44,732	42,011	43,616	36,150	37,395
Van Wert	10,088	10,394	11,674	13,833	15,236	14,962	14,083	13,338	9.273	10,595
Vinton	15,685	16,075	17,615	19,713	19,625	19,658	18,380	19,097	18,152	22,420
Warren	6,378	6.136	5,860	9,051	11,239	12,336	12,965	11,965	11,577	14,408
Washington	27,711	26,282	27,433	32,679	37,390	40,064	40,706	37,824	32,961	38,472
Wayne	17,211	17,421	19,521	22,210	25,570	24,770	26,481	25,571	21.573	22.823
Williams	22,582	25,722	25,877	29,046	28,056	25,539	28,043	24,466	21,521	22,376
Wood	11,032	14.681	14,642	18,528	19,500	16,657	17,745	17,586	19,478	20,374
Wyandot	58,913	60,090	62,773	60,595	65,940	66,852	59,986	56,245	56,475	59,462
Totals	2,005,553	2,033,072	2,127,451	2,331,078	2,546,772	2,544,070	2,512,761	2,404,558	2,123,624	2,293,686

TABLE SHOWING THE NUMBER OF HOGS IN OHIO FOR TEN YEARS.

Counties.	Number of Hogs.									
	1905.	1904.	1903.	1902.	1901.	1900.	1899.	1898.	1897.	1896.
Adams	7,943	8,899	10,478	8,269	8,621	10,346	12,243	14,202	10,908	11,600
Allen	22,416	21,911	23,354	26,238	24,351	23,449	23,517	26,638	20,352	25,017
Ashland	15,016	19,392	20,808	17,925	26,717	15,535	17,814	20,348	16,419	14,881
Ashtabula	4,163	5,247	5,465	4,915	4,031	3,661	4,684	5,072	5,547	5,993
Athens	2,052	2,945	2,954	2,855	2,978	3,444	3,837	4,900	4,715	4,360
Auglaize	22,278	22,179	22,407	25,091	25.759	25.531	25,107	28,210	22.982	22,524
Belmont	7,208	9,105	9,758	9,735	9,441	10,805	11,644	14,551	12.270	10,375
Brown	16,558	20,849	20,069	18,436	19,960	21,708	25,107	28,210	22,370	21,867
Butler	20,804	24,376	21,780	24,417	22,381	20,758	21,164	25.868	19.288	18,642
Carroll	7,113	8,500	9,102	8,727	7,680	8,276	9.805	10,142	10,139	8,316
Champaign	34,731	35,287	34,498	33,409	31,758	29,921	27.768	34,408	25,025	22,837
Clark	24,743	25,400	25,059	24,056	22,888	26,571	26.786	29.464	22,947	21,225
Clermont	11,460	13,798	14,549	15,012	15,667	16,014	17,946	20,921	16.521	14,597
Clinton	38,220	36,826	37,210	38,230	40.795	38,493	33.538	37,957	32,183	29,279
Columbiana	10,518	12,596	11,927	11,359	10,642	11,376	11,511	12,920	11,433	11,175
Coshocton	9,812	12,535	15,736	14,056	11,338	13,022	15.525	17,151	15,686	13,897
Crawford	22,780	24,216	30,261	32,416	29,198	28,801	27,651	34,786	32,509	27.992
Cuyahoga	2,185	2,610	2,794	2,526	1,903	2,047	2,176	2,627	2,662	3,160
Darke	39,334	40,934	39,670	38,755	35,686	34,228	33,879	42,210	34,423	33,085
Defiance	16,683	15,243	15,360	14,933	14.494	13,747	13,309	16,233	11,411	14,229
Delaware	17,751	23,375	24,420	24,887	22,944	21,726	23.346	26,111	21,128	18,517
Erie	6,415	7,209	7,235	7,410	6,474	6,080	4,021	8,205	8,023	8,471
Fairfield	29,035	32,465	31,158	31,248	33.755	37,733	38,008	41,284	30,043	26,493
Fayette	35,464	32,777	29,967	33,234	37.185	36,132	32,067	41,369	31,705	32,360
Franklin	23,003	23,624	22,138	22,735	22,747	27,162	28,276	29,743	22,639	22,814
Fulton	22,688	22,956	21,298	22,133	19,773	16,711	17,321	21,821	17,300	19,793
Gallia	4,081	5,344	5,454	5,512	6,803	6,540	7,387	9,020	7,480	7,678
Geauga	3,333	4,183	4,368	4,433	3.532	3,326	4,404	4,731	4,076	4,322
Greene	28,985	30,661	30,099	27,736	25,211	25,768	29,709	32,456	21,569	22,009
Guernsey	4.031	5,647	6,826	6,138	5,686	6,497	7,038	9,630	9,100	7,976
Hamilton	8,348	9,431	9,865	10,307	10,521	11,060	12,039	11,884	10,800	10,278
Hancock	34,198	36,663	33,075	33,971	31.449	34,126	37,999	43,340	30,747	31,991
Hardin	28,449	32,062	31,859	31,932	28,904	29,292	25,070	31.491	24,798	22,737
Harrison	4.140	5,404	6,209	5.959	5.010	5.307	6,150	7,741	7,148	6,180
Henry	18,167	18,743	18,494	17,962	17,871	19,022	18,298	17,240	16,778	15,928
Highland	28,899	32,627	32,731	34,104	34,570	33,435	33,687	27,277	29,757	31,145
Hocking	4,078	5,309	5,643	5,260	6,265	5,942	5,967	6,937	6,169	6,647

Holmes	15,738	18,154	22,529	20,669	18,905	18,486	20,049	22,716	20,343	16,146
Huron	11,203	14,252	15,649	14,677	10,913	11,196	13,051	15,701	13,629	12,358
Jackson	3,012	3,446	3,557	3,456	3,743	3,921	4,542	5,411	4,600	4,613
Jefferson	4,966	5,811	6,093	5,625	5,120	6,762	6,836	8,488	8,062	6,694
Knox	16,253	21,090	24,363	20,511	17,249	18,794	21,351	25,911	23,111	18,344
Lake	1,546	2,057	2,031	1,580	1,453	1,295	1,606	1,840	1,774	1,955
Lawrence	3,050	4,078	4,505	3,471	4,035	4,549	4,947	5,478	4,791	4,651
Licking	23,269	28,555	30,896	29,162	27,622	31,544	34,194	38,247	30,425	26,500
Logan	27,000	29,309	30,840	29,538	27,753	26,993	26,795	31,345	23,835	20,246
Lorain	7,001	8,412	9,433	8,401	7,123	6,434	7,799	8,955	7,893	8,128
Lucas	8,952	9,023	9,097	8,176	7,799	7,020	7,369	9,169	7,688	6,054
Madison	34,646	33,243	36,882	35,342	37,220	34,730	34,543	39,594	32,549	26,147
Mahoning	7,058	7,457	8,305	7,685	6,963	7,423	7,747	9,087	8,373	7,507
Marion	27,005	29,900	30,518	39,278	23,999	24,114	21,406	26,489	23,395	21,786
Medina	9,173	11,075	11,072	10,943	9,156	7,994	9,667	11,101	9,479	8,932
Meigs	2,276	3,272	3,180	3,211	3,433	4,094	4,733	5,882	5,205	4,795
Mercer	25,056	27,180	26,858	27,107	25,618	22,584	27,533	31,420	26,462	27,212
Miami	15,918	20,090	18,233	17,891	14,785	16,737	19,122	21,269	14,318	15,631
Monroe	4,304	5,202	5,927	4,779	5,369	5,964	5,469	7,119	6,605	5,344
Montgomery	21,598	23,584	22,406	22,094	19,609	20,740	21,663	23,871	17,230	20,618
Morgan	3,753	4,936	5,031	4,667	4,550	4,552	5,272	7,440	6,525	5,874
Morrow	12,173	15,843	16,282	14,772	14,031	14,156	16,239	18,806	16,357	13,457
Muskingum	9,369	11,142	12,277	11,442	11,041	11,578	13,518	16,037	14,817	13,390
Noble	4,362	6,072	7,459	6,711	5,810	6,733	7,743	10,191	8,684	7,417
Ottawa	7,909	8,089	8,070	8,444	6,958	7,499	9,885	10,917	10,492	9,335
Paulding	10,816	8,331	11,643	11,382	11,149	11,324	8,802	10,049	8,009	10,488
Perry	8,028	9,117	9,589	9,037	8,748	9,201	10,692	12,267	10,243	9,269
Pickaway	26,869	24,644	26,068	26,627	28.331	30,706	29,475	30,628	20,297	27,742
Pike	5,778	6,573	7,165	6,287	5,771	6,795	7,417	8,877	6,680	6,828
Portage	6,850	8,085	7,553	7,301	6,016	6,123	7,614	8,675	7,409	7,321
Preble	30,869	33,080	29,481	30,655	30,295	27,858	31,056	33,693	21,983	23,880
Putnam	31,409	30,199	28,801	38,567	37,319	35,974	34,399	35,755	31,582	33,347
Richland	18,763	23,617	25,275	23,770	20,916	19,451	21,348	25,656	21,619	20,097
Ross	22,941	25,372	25,215	24,744	24,698	26,006	24,136	36,408	21,579	24,892
Sandusky	22,084	19,872	15,188	16,178	11,820	20,339	23,541	23,559	22,255	22,233
Scioto	6,251	7,377	7,512	6,041	5,805	7,420	8,347	7,677	6,992	8,289
Seneca	32,238	29,925	28,913	28,034	22,680	27,644	34,403	40,672	34,654	33,435
Shelby	17,133	19,803	16,412	19,769	18,055	18.815	20,432	26,208	20,320	18,974
Stark	16,707	21,938	22,993	23,199	21,328	21,685	22,508	26,341	24,276	22,611
Summit	7,967	9,300	9,690	9,391	8,213	7,786	9,294	11,056	9,689	9,028
Trumbull	6,259	6,795	6,276	6,245	6,008	5,519	6,579	6,953	6,593	7,800
Tuscarawas	11,170	11,612	13,083	13,070	11,812	12,450	13,477	17,004	15,729	14,859
Union	28,386	32,119	34,069	33,642	29,275	29,010	25,952	28,953	21,977	21,239
Van Wert	23,653	24,236	23,198	23,021	24,339	25.051	22,973	24,963	16,393	22.469
Vinton	1,729	2,109	2,214	2,111	2,097	2,248	3,393	3,324	3,324	3,254
Warren	19,281	20,226	20,433	27,501	21,948	22,537	23,562	28,459	18,649	16.526
Washington	5,026	6,623	6,221	6,073	6,382	6,870	7,608	9,808	7,838	7.739
Wayne	22,529	27,830	27,953	26,695	25,329	24,135	27,255	31.690	27,454	22.709
Williams	21,088	23,758	22,834	23,281	20,689	19,455	16,949	19,888	17,891	19.130
Wood	31,460	32,096	31,178	30,621	29,371	32,500	34,026	37,612	29,694	26.397
Wyandot	25,229	29,062	29,148	27,240	23,692	23,132	25,378	27,400	26,155	23.678
Totals	1,404,185	1,536,308	1,553,676	1,556,435	1,467,331	1,489,518	1,549,552	1,794,014	1,455,247	1,407,758

ABSTRACTS FROM REPORTS OF COUNTY AGRICULTURAL SOCIETIES FOR 1905.

TABLE I—COUNTY FAIRS IN OHIO FOR 1905.

County.	President.	Postoffice.	Treasurer.	Postoffice.
Adams	W. S. Kincaid	West Union	H. W. Dickinson	West Union.
Allen	J. A. States	Beaver Dam, R. F. D	G. R. Fetter	Lima.
Ashtabula	W. H. Dodge	Dodgeville	Chas. C. Babcock	Jefferson.
Athens	A. Murphy	Athens	E. R. Walker	Athens.
Auglaize	Chas. Frazier	Uniopolis	T. E. Bowsher	Buckland.
Belmont	D. S. Creamer	St. Clairsville	W. T. Judkins	Maynard.
Brown	V. K. Thompson	Georgetown	B. M. Marshall	Georgetown.
Butler	J. A. Slade	Hamilton, R. F. D. No. 3	W. B. Wallace	Oxford.
Carroll	M. O. Cooper	Magnolia	T. J. Saltsman	Carrollton.
Champaign	C. H. Ganson	Urbana	H. P. Wilson	Urbana.
Clark	H. L. Rockfield	Springfield	T. L. Calvert	Selma.
Clermont	G. M. Roudebush	Newtonsville	J. O. Rapp	Owensville.
Clinton	J. R. Ross	Blanchester	E. M. Goodwin	Blanchester.
Columbiana	Wm. M. Travis	Lisbon	F. G. Bowman	Elkton.
Coshocton	W. S. Simon	Coshocton	W. B. Miller	Coshocton.
Crawford	J. W. Stuckman	Bucyrus	W. A. Blicke	Bucyrus.
East Cuyahoga	E. C. Foote	Warrensville	George March	Chagrin Falls.
West Cuyahoga	W. G. Hutchinson	Berea	W. J. Poots	Vigil.
Darke	J. M. Brown	Arcanum	Ed. Ammon	Gordon.
Erie	C. F. Steen	Sandusky	Geo. J. Doerzbach	Sandusky.
Fairfield	Jacob Alspach	Lancaster	C. B. Whiley	Lancaster.
Fulton	A. F. Shaffer	Wauseon	G. W. Howard	Wauseon .
Geauga	J. I. Wilber	Chagrin Falls	F. H. Crittenden	Burton.
Greene	Chas. M. Austin	Bellbrook	R. D. Williamson	Xenia.
Guernsey	J. W. Moore	Washington	R. S. Frame	Washington.
Hamilton	H. Lee Early	Home City	George E. Pfau	Hartwell.
Hancock	W. H. Deeds	Findlay, R. F. D.	Jacob Stark	Findlay.
Hardin	A. T. Evans	Kenton	T. P. Evans	Kenton.
Harrison	W. V. Scott	Hopedale	Chas. E. Stewart	Cadiz.
Jefferson	Alonzo Hayne	Adena	Chas. McKinney	Smithfield.
Lawrence	W. H. Feurt	Proctorville	E. J. Smith	Proctorville.
Licking	W. H. Kussmaul	Granville	B. N. Sigler	Homer.
Logan	John A. Harner	West Liberty	W. R. Niven	Bellefontaine,
Lorain	W. E. Miller	Elyria	L. D. Hamlin	Elyria.
Madison	L. W. Kilgore	London	M. L. Rea	London.
Mahoning	C. C. Bowman	Berlin Center	C. C. Fowler	Canfield.
Marion	H. W. Cookston	Cochranton	C. B. Jenkins	Marion.
Medina	W. J. Anderson	Medina	F. E. Clark	Medina.
Meigs	Austin W. Vorhes	Pomeroy	John McQuigg	Pomeroy.

Mercer	C. F. Kruger	Celina, R. F. D. No. 4	Wm. H. Romer	St. Henry.
Miami	W. F. Robbins	Piqua	John N. McDowell	Troy.
Monroe	W. C. Mooney	Woodsfield	W. C. Mooney	Woodsfield.
Montgomery	S. D. Bear	Dayton	Alonzo Michael	Alexandersville.
Morgan	Benj. F. Reed	McConnellsville	Harry M. Finley	McConnelsville.
Morrow	C. W. McFarland	Galion, R. F. D.	J. G. Russell	Mt. Gilead.
Muskingum	Geo.. K. Browning	Zanesville	A. F. Vest	Zanesville.
Noble	John McWilliams	Sarahsville	S. E. Groff	Sarahsville.
Paulding	Allen Bybee	Paulding	M. C. Bashore	Paulding.
Perry	T. J. Tracy	New Lexington	Wm. A. Allen	New Lexington.
Pike	W. A. Russell	Beaver	G. W. Baker	Beaver.
Portage	C. R. Doolittle	Kent	Geo. F. Douthitt	Ravenna.
Preble	Noah Siler	West Manchester	C. F. Brooke, Jr	Eaton.
Putnam	W. J. Varner	Ottawa	Samuel Cartwright	Ottawa.
Richland	W. H. Shryock	Mansfield, R. F. D. No. 8	John Hale	Mansfield, R. F. D. No. 8
Sandusky	J. J. Brim	Woodville	T. A. Lang	Fremont.
Scioto	D. T. Blackburn	Rarden	W. A. McGeorge	Mt. Joy.
Seneca	Silas Roher	Tiffin	E. E. Volkmor	Tiffin.
Shelby	D. J. Cargill	Port Jefferson	John Duncan	Sidney.
Stark	I. J. Snyder	Canton	H. A. Wise	Canton.
Summit	John F. Moore	Copley, R. F. D. No. 29	George W. Brewster	Akron.
Trumbull	A. Brown	Warren	C. H. Ewalt	Warren.
Tuscarawas	Samuel Toomey	Canal Dover	A. C. Ruff	Canal Dover.
Union	F. O. Johnson	Claibourne	Homer Southard	Marysville.
Van Wert	Dr. B. F. Leslie	Convoy	E. B. Gilliland	Van Wert.
Warren	A. D. Smith	Lebanon	Philip Surface	Waynesville.
Washington	Hiram True	Lower Salem	Chas. W. Zimmer	Stanleyville.
Wayne	John C. McClaran	Wooster	W. A. Wilson	Wooster.
Williams	Jacob Faber	Bryan	C. A. Fyke	Bryan.
Wood	W. H. Hannah	Tontogany	Hugh Stewart	Dunbridge.
Wyandot	H. E. Hedges	Upper Sandusky	Peter Frank, Jr	Upper Sandusky.

COUNTY FAIRS IN OHIO FOR 1905—WITH TIME AND PLACE.

County.	Secretary.	Postoffice.	Time of Fair.	Place of Fair.
Adams	T. W. Ellison	West Union	Sept. 12, 13, 14 and 15	West Union.
Allen	T. B. Bowersock	Lima	Sept. 12, 13, 14 and 15	Lima.
Ashtabula	J. W. Roberts	Jefferson	Aug. 22, 23 and 24	Jefferson.
Athens	H. H. Haning	Athens	Aug. 22, 23 and 24	Athens.
Auglaize	A. E. Schaffer	Wapakoneta	Sept. 26, 27, 28 and 29	Wapakoneta.
Belmont	J. H. Taylor	St. Clairsville	Aug. 29, 30, 31 and Sept. 1	St. Clairsville.
Brown	J. W. Hedrick	Russelville	Oct. 3, 4, 5 and 6	Georgetown.
Butler	L. M. Larsh	Hamilton	Oct. 3, 4, 5 and 6	Hamilton.
Carroll	C. A. Tope	Carrollton	Oct. 10, 11, 12 and 13	Carrollton.
Champaign	J. W. Crowl	Urbana	Aug. 15, 16, 17 and 18	Urbana.
Clark	S. Van Bird	Springfield	Aug. 22, 23, 24, 25 and 26	Springfield.
Clermont	John Rowan	Norwood, 2118 Monroe Ave	Aug. 29, 30, 31 and Sept. 1	Boston (Owensville P. O.)
Clinton	Miner Swan	Blanchester	Aug. 22, 23, 24 and 25	Blanchester.
Columbiana	E. F. Moore	Lisbon	Sept. 12, 13 and 14	Lisbon.
Coshocton	Robert Boyd	Coshocton	Oct. 10, 11, 12 and 13	Coshocton.
Crawford	D. W. Hurr	Bucyrus	Oct. 10, 11, 12 and 13	Bucyrus.
East Cuyahoga	F. C. Gates	Chagrin Falls	Sept. 5, 6, 7 and 8	Chagrin Falls..
West Cuyahoga	O. R. Stone	Berea	Sept. 12, 13 and 14	Berea.
Darke	J. A. Tillman	Greenville	Aug. 28, 29, 30, 31 and Sept. 1	Greenville.
Erie	F. H. Zerbe	Sandusky	Sept. 12, 13, 14 and 15	Sandusky.
Fairfield	W. T. McClenaghan	Lancaster	Oct. 11, 12, 13 and 14	Lancaster.
Fayette	Rell G. Allen	Washington C. H	Sept. 12, 13, 14 and 15	Washington C. H.
Fulton	D. W. Williams	Wauseon	Sept. 19, 20, 21 and 22	Ottokee.
Geauga	W. S. Ford	Burton	Sept. 12, 13, 14 and 15	Burton.
Greene	R. R. Grieve	Xenia	Aug. 8, 9, 10 and 11	Xenia.
Guernsey	J. F. St. Clair	Washington	Sept. 26, 27, 28 and 29	Washington.
Hamilton	D. L. Sampson	Cincinnati, 11 Wiggins Block	Aug. 15, 16, 17 and 18	Cincinnati (Oakley Park)
Hancock	Wm. Demland	Findlay	Aug. 30, 31 and Sept. 1, 2	Findlay.
Hardin	M. M. Thompson	Kenton	Aug. 29, 30, 31 and Sept. 1	Kenton.
Harrison	E. B. Kirby	Cadiz	Oct. 3, 4 and 5	Cadiz.
Jefferson	J. O. Hayne	Smithfield	Sept. 27, 28 and 29	Smithfield.
Lawrence	W. W. Sprouse	Proctorville	Sept. 13, 14 and 15	Proctorville.
Licking	J. M. Farmer	Newark	Oct. 3, 4, 5, 6 and 7	Newark.
Logan	John P. Aikin	Bellefontaine	Aug. 22, 23, 24 and 25	Bellefontaine.
Lorain	Anthony Nieding	Elyria	Sept. 19, 20, 21 and 22	Elyria.
Madison	E. B. Pancake	London	Aug. 29, 30, 31 and Sept. 1	London.
Mahoning	B. L. Manchester	Salem	Sept. 26, 27 and 28	Canfield.
Marion	J. A. Knapp	Marion	Sept. 26, 27, 28 and 29	Marion.
Medina	O. O. Van Deusen	Medina	Sept. 5, 6 and 7	Medina.
Meigs	C. H. Church	Rutland, R. F. D. No. 2		
Mercer	Fred Heiby	Ft. Recovery	Aug. 21, 22, 23, 24 and 25	Celina.
Miami	W. I. Teney	Troy	Sept. 18, 19, 20, 21 and 22	Troy.
Monroe	Geo. P. Dorr	Woodsfield	Aug. 30, 31 and Sept. 1,	Woodsfield.
Montgomery	W. J. Ferguson	Dayton	Sept. 4, 5, 6. 7 and 8.	Dayton.

Morgan	George H. Black	McConnellsville	Sept. 26, 27 and 28	McConnellsville.
Morrow	G. J. Smith	Mt. Gilead	Oct. 3, 4, 5 and 6	Mt. Gilead.
Muskingum	R. J. White	Chandlersville	Sept. 19, 20, 21 and 22	Zanesville.
Noble	Homer Johnson	Sarahsville	Sept. 12, 13 and 14	Sarahsville.
Paulding	John A. Jenkins	Paulding	Sept. 5, 6, 7 and 8	Paulding.
Perry	Charles C. Chappelear	New Lexington	Sept. 27, 28 and 29	New Lexington.
Pike	T. W. Horton	Beaver	Sept. 19, 20 and 21	Beaver.
Portage	Lafayette Smith	Ravenna	Sept. 19, 20, 21 and 22	Ravenna.
Preble	G. W. Daugherty	Eaton	Sept. 11, 12, 13, 14 and 15	Eaton.
Putnam	A. P. Sandles	Ottawa	Oct. 3, 4, 5, 6 and 7	Ottawa.
Richland	John H. Coss	Mansfield	Aug. 30, 31 and Sept. 1, 2	Mansfield.
Sandusky	A. W. Overmyer	Fremont	Oct. 3, 4, 5 and 6	Fremont.
Scioto	W. A. McGeorge	Mt. Joy	Aug. 29, 30, 31 and Sept. 1	Mt. Joy.
Seneca	M. E. Ink	Republic	Sept. 12, 13, 14 and 15	Tiffin.
Shelby	J. E. Russell	Sidney	Sept. 12, 13, 14 and 15	Sidney.
Stark	J. H. Lehman	Canton	Sept. 26, 27, 28 and 29	Canton.
Summit	O. J. Swinehart	Akron	Oct. 3, 4, 5 and 6	Akron.
Trumbull	M. A. McClean	Warren	Sept. 5, 6 and 7	Warren.
Tuscarawas	J. S. Karns	Canal Dover	Oct. 17, 18, 19 and 20	Canal Dover.
Union	W. F. Brodrick	Marysville	Sept. 12, 13, 14 and 15	Marysville.
Van Wert	E. V. Walborn	Van Wert	Sept. 12, 13, 14 and 15	Van Wert.
Warren	Geo. W. Carey	Lebanon	Sept. 19, 20, 21 and 22	Lebanon.
Washington	James F. Hovey	Marietta	Sept. 5, 6, 7 and 8	Marietta.
Wayne	G. J. Ebright	Shreve	Sept. 26, 27 and 28	Wooster.
Williams	C. C. Lattanner	Montpelier	Sept. 12, 13, 14, 15 and 16	Montpelier.
Wood	R. S. Sweet	Bowling Green	Sept. 26, 27, 28, 29 and 30	Bowling Green.
Wyandot	A. F. Schoenberger	Upper Sandusky	Oct. 3, 4, 5 and 6	Upper Sandusky.

TABLE II—ENTRIES AND AWARDS.

Counties.	Horses—All breeds and classes except speed.			Speed Horses.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	197	$747 00	$700 00	......	....	....
Allen	77	621 00	252 00	77	$2,750 00	$1,923 50
Ashtabula	102	336 00	194 00	67	2,400 00	2,370 00
Athens	84	208 00	158 00	14	1,000 00	550 00
Auglaize	163	460 00	352 00	112	3,600 00	2,942 50
Belmont	61	357 50	167 00	24	1,300 00	898 75
Brown	270	690 00	535 00	13	90 00	90 00
Butler	468	1,007 00	799 30	159	4,200 00	3,340 00
Carroll	212	435 00	395 00	82	1,200 00	1,200 00
Champaign	206	418 00	304 00	161	3,150 00	2,850 00
Clark	109	916 00	442 00	107	5,100 00	4,510 00
Clermont	264	721 00	633 00	19	730 00	730 00
Clinton	114	492 00	388 00	37	1,530 00	1,350 00
Columbiana	125	367 00	283 00	......	1,200 00	700 00
Coshocton	162	1,112 00	522 50	91	3,600 00	2,407 50
Crawford	86	436 00	244 00	......	2,000 00	1,405 00
West Cuyahoga	91	283 00	159 00	68	1,805 00	1,775 00
East Cuyahoga	122	297 00	157 00	48	1,150 00	950 00
Darke	247	1,149 00	737 10	151	3,200 00	2,598 75
Erie	45	449 00	166 00	67	2,000 00	1,759 70
Fairfield	222	600 00	538 00	93	3,150 00	3,060 00
Fulton	68	527 00	204 00	30	1,400 00	1,140 00
Geauga	172	427 75	247 25	46	1,600 00	1,600 00
Greene	147	410 00	361 00	93	2,500 00	1,695 00
Guernsey	148	410 00	385 00	26	1,160 00	1,052 00
Hamilton	343	731 50	725 00	109	3,410 00	3,110 00
Hancock	147	913 00	498 00	24	3,000 00	2,290 00
Hardin	129	632 00	326 00	......	2,320 00	2,320 00
Harrison	84	288 00	226 00	25	1,050 00	1,050 00
Jefferson	105	487 00	322 00	49	1,400 00	1,400 00
Lawrence	54	180 50	110 00	16	345 00	345 00
Licking	241	601 00	472 00	71	3,400 00	2,437 50
Logan	227	716 50	475 50	......	2,400 00	2,460 00
Lorain	......	600 00	356 00	......	1,625 00	1,307 37
Madison	168	663 50	449 00	135	3,150 00	3,050 00
Mahoning	99	441 00	286 00	45	1,500 00	1,500 00
Marion	151	755 00	544 00	102	1,850 00	1,850 00
Medina	197	444 25	268 75	28	1,260 00	991 25
Meigs	72	414 00	229 00	36	1,330 00	930 40
Mercer	172	926 00	526 05	125	2,625 00	2,034 50
Miami	276	1,096 00	883 00	165	3,450 00	3,435 00
Monroe	44	365 00	200 00	59	1,950 00	1,860 00
Montgomery	245	826 00	643 50	101	5,300 00	5,250 00
Morgan	96	276 00	130 00	12	650 00	310 00
Morrow	159	527 00	404 00	91	2,200 00	1,660 00
Muskingum	181	720 00	563 00	74	2,400 00	1,960 00
Noble	33	299 75	122 50	10	400 00	200 00
Paulding	73	586 00	205 50	56	1,875 00	1,875 00
Perry	74	294 00	203 00	59	1,650 00	1,085 00
Pike	59	490 00	181 50	33	1,295 00	1,007 25

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Horses—All breeds and classes except speed.			Speed Horses.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	89	$415 50	$206 00	67	$1,200 00	$1,200 00
Preble	364	689 00	715 00	124	2,750 00	2,092 50
Putnam	209	915 00	541 00	75	2,600 00	2,600 00
Richland	72	374 00	176 00	58	1,950 00	1,950 00
Sandusky	231	975 00	553 00	48	2,150 00	1,597 50
Scioto	99	304 50	283 00	37	950 00	670 00
Seneca	150	763 00	400 00	23	1,600 00	655 00
Shelby	182	630 50	427 00	......	....	2,171 25
Stark	130	728 00	570 00	......	1,500 00	1,500 00
Summit	187	640 00	509 50	60	2,600 00	2,500 00
Trumbull	124	219 00	188 00	64	1,865 00	1,160 40
Tuscarawas	35	239 00	102 50	45	1,960 00	1,583 20
Union	......	500 00	350 00	......	2,900 00	1,600 00
Van Wert	177	1,100 00	579 00	58	2,825 00	2,780 00
Warren	161	417 00	35 70	99	1,550 00	1,530 00
Washington	118	429 00	210 50	......	2,700 00	2,100 00
Wayne	142	425 00	246 00	28	1,700 00	1,270 00
Williams	88	477 00	229 00	52	2,405 00	1,737 25
Wood	143	744 50	437 00	13	74 00	42 00
Wyandot	62	288 00	161 00	104	1,850 00	1,675 00
Total	10,159	$39,422 25	$25,591 65	3,965	$140,779 00	$121,030 07

Note—Lorain and Union Counties number of entries not reported.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Cattle—All breeds and classes.			Sheep—All breeds and classes.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	36	$244 00	$144 00	14	$57 00	$44 00
Allen	48	530 00	140 00	37	155 00	71 00
Ashtabula	95	436 00	185 00	91	142 00	120 00
Athens	22	116 00	70 00	52	83 00	75 00
Auglaize	78	304 00	207 00	27	193 00	27 00
Belmont	18	399 00	80 00	92	196 00	185 00
Brown	50	240 00	155 00	45	145 00	145 00
Butler	84	631 00	381 60	80	357 00	275 40
Carroll	85	336 00	226 00	137	312 00	271 00
Champaign	67	415 00	179 00	183	345 00	307 00
Clark	73	724 00	306 00	149	430 00	375 00
Clermont	46	292 00	206 00	102	202 00	192 00
Clinton	85	359 00	333 00	46	152 75	112 00
Columbiana	66	372 00	219 00	71	329 00	159 00
Coshocton	231	1,019 00	812 00	182	572 00	485 00
Crawford	85	288 00	191 00	155	245 00	196 00
West Cuyahoga	102	470 25	221 75	115	150 25	144 75
East Cuyahoga	73	600 75	154 00	65	245 75	139 00
Darke	210	788 00	557 10	108	378 00	273 60
Erie	38	464 00	130 50	80	96 00	57 25
Fairfield	182	1,076 00	650 00	123	489 00	468 00
Fulton	91	516 00	301 00	133	229 00	136 00
Geauga	80	560 00	176 50	94	381 50	257 50
Greene	149	606 00	438 00	141	360 00	350 00
Guernsey	93	489 00	398 00	56	194 00	187 00
Hamilton	135	540 00	491 00	142	245 00	234 00
Hancock	85	450 00	299 00	123	323 00	259 00
Hardin	35	359 00	109 00	52	226 00	131 00
Harrison	31	182 00	98 00	44	81 00	80 00
Jefferson	60	316 00	286 00	44	178 00	171 00
Lawrence	27	147 00	86 91	4	27 00	6 00
Licking	84	630 00	302 00	164	420 00	372 50
Logan	55	256 00	156 50	140	155 00	147 50
Lorain	......	525 00	243 50	......	475 00	157 00
Madison	103	614 00	512 00	156	288 00	288 00
Mahoning	64	411 00	243 00	63	183 00	156 00
Marion	112	473 00	244 00	171	275 00	224 00
Medina	110	450 75	232 00	164	271 00	246 50
Meigs	22	240 00	112 00	22	90 00	72 00
Mercer	131	700 00	346 50	135	295 50	270 45
Miami	108	953 00	385 00	112	288 00	216 00
Monroe	25	165 00	83 00	37	192 00	104 00
Montgomery	140	948 00	575 00	136	438 00	433 00
Morgan	92	279 00	92 00	80	74 00	49 00
Morrow	60	297 00	187 00	75	222 00	102 00
Muskingum	108	720 00	373 00	117	267 00	235 00
Noble	53	325 00	146 00	1	57 00	3 00
Paulding	45	388 50	127 75	30	181 00	67 00
Perry	14	221 50	37 00	24	64 50	44 50
Pike	3	99 00	8 50	8	85 00	14 50

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Cattle—All breeds and classes.			Sheep—All breeds and classes.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	89	$480 00	$364 00	105	$252 00	$230 50
Preble	120	908 00	632 00	130	255 00	205 00
Putnam	64	677 00	293 00	147	429 00	273 50
Richland	49	296 00	147 00	88	148 00	121 00
Sandusky	141	795 00	521 00	97	147 00	144 00
Scioto	28	981 00	126 50	26	555 00	78 50
Seneca	85	891 00	280 00	109	214 00	174 00
Shelby	15	342 00	34 00	42	216 00	71 00
Stark	83	540 00	344 00	199	329 00	329 00
Summit	99	663 00	446 00	172	382 50	373 00
Trumbull	53	300 00	193 00	53	129 00	113 00
Tuscarawas	29	152 00	55 00	28	75 00	18 00
Union	......	400 00	241 00	......	400 00	170 00
Van Wert	91	1,820 00	441 00	124	702 00	408 00
Warren	31	201 00	100 00	16	108 00	37 00
Washington	106	1,072 00	240 50	33	156 25	90 25
Wayne	28	296 00	81 00	41	145 50	99 00
Williams	61	295 00	164 00	106	172 00	110 50
Wood	175	825 00	554 00	159	343 00	296 00
Wyandot	36	268 00	105 00	45	105 00	82 00
Total..........	5,272	$35,166 75	$17,999 11	6,142	$17,103 50	$12,558 70

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Swine—All breeds and classes.			Poultry.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	21	$90 00	$45 00	150	$121 50	$93 00
Allen	111	300 00	163 00	37	106 75	19 00
Ashtabula	75	210 00	186 00	125	102 00	74 00
Athens	27	51 00	46 00	44	50 00	12 00
Auglaize	61	280 00	103 00	410	155 00	102 48
Belmont	31	95 00	78 00	155	145 00	93 25
Brown	115	185 00	170 00	450	125 00	110 00
Butler	112	410 00	360 90	621	267 50	202 44
Carroll	93	200 00	190 00	207	81 60	52 00
Champaign	173	220 00	199 00	805	231 00	182 00
Clark	105	265 00	220 00	682	414 60	240 65
Clermont	59	192 00	125 00	158	76 75	75 00
Clinton	37	185 00	98 00	151	445 00	222 50
Columbiana	56	120 00	101 00	21	60 00	10 50
Coshocton	149	474 00	294 00	950	478 40	368 15
Crawford	168	280 00	247 00	119	116 00	50 50
West Cuyahoga	115	261 00	200 50	267	....	75 75
East Cuyahoga	53	235 50	101 50	179	360 80	132 65
Darke	251	444 00	393 30	1,310	325 75	263 02
Erie	......	100 00	....	113	75 00	72 50
Fairfield	126	696 00	502 00	837	212 00	210 00
Fulton	166	247 00	167 50	580	280 00	197 40
Geauga	65	196 00	142 00	435	561 00	129 25
Greene	155	228 00	224 00	197	160 00	128 75
Guernsey	36	93 00	89 50	54	140 00	24 00
Hamilton	130	358 00	350 00	1,088	416 75	328 75
Hancock	67	217 00	136 00	223	322 00	157 75
Hardin	91	201 00	184 00	216	143 00	86 25
Harrison	8	81 00	17 00	66	37 00	12 00
Jefferson	44	202 00	180 00	155	294 75	144 53
Lawrence	8	32 00	21 00	30	34 20	15 00
Licking	174	400 00	351 00	471	253 80	139 00
Logan	125	226 20	191 00	598	225 00	175 50
Lorain	......	475 00	200 00	......	800 00	600 00
Madison	129	344 00	342 00	327	201 00	165 50
Mahoning	68	201 00	173 00	496	357 00	166 85
Marion	141	300 00	180 00	641	400 00	279 50
Medina	76	179 00	151 50	440	....	158 10
Meigs	21	100 00	52 00	38	105 50	18 50
Mercer	101	346 00	279 45	235	250 00	157 68
Miami	143	335 00	295 00	443	193 50	187 00
Monroe	19	132 00	77 00	50	140 00	34 50
Montgomery	209	715 00	583 00	682	301 25	231 50
Morgan	32	93 00	58 00	372	163 60	115 65
Morrow	69	240 00	131 00	458	245 25	126 50
Muskingum	85	224 00	154 00	679	154 50	137 20
Noble	1	22 50	4 00	6	114 50	3 00
Paulding	60	204 00	137 25	89	104 00	17 23
Perry	22	124 75	49 20	117	75 50	53 00
Pike	5	101 00	12 00	5	90 25	1 50

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Swine—All breeds and classes.			Poultry.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Portage	25	$108 00	$70 50	426	$320 00	$154 75
Preble	119	404 00	308 00	483	237 75	192 10
Putnam	146	372 00	302 00	1,070	273 00	223 65
Richland	37	229 00	69 00	562	201 25	145 00
Sandusky	138	405 00	298 00	774	675 25	501 50
Scioto	30	332 00	72 50	250	247 00	75 00
Seneca	128	274 00	170 00	378	297 00	103 00
Shelby	104	192 00	187 50	155	146 25	50 00
Stark	110	288 00	277 00	588	247 75	227 05
Summit	186	375 00	368 50	1,126	721 75	420 50
Trumbull	50	136 00	112 00	65	57 00	18 00
Tuscarawas	24	147 00	77 00	250	125 00	68 00
Union	......	300 00	120 00	......	300 00	200 00
Van Wert	106	351 00	337 00	1,094	540 00	421 75
Warren	79	228 00	189 00	105	270 00	51 00
Washington	62	384 00	74 75	88	90 75	40 25
Wayne	37	149 50	86 00	392	154 60	111 95
Williams	54	225 00	88 00	178	155 05	67 65
Wood	181	319 00	315 00	1,072	394 17	357 10
Wyandot	73	125 00	74 00	749	540 00	288 50
Total..........	5,877	$17,254 45	$12,350 35	26,787	$16,507 57	$10,369 53

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Machinery and Agricultural Implements.			Manufactures.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	19	$17 00	$17 00	9	$16 00	$7 00
Allen	42	21 00	16 00	15	25 00	13 80
Ashtabula	4	31 25	2 50	......	....	....
Athens	14	40 00	14 00	14	20 00	18 00
Auglaize	200	....	....	97	....	....
Belmont	11	43 50	6 50	12	8 00	8 00
Brown	15	25 00	15 00	5	15 00	15 00
Butler	4	125 00	112 50	5	125 00	67 50
Carroll	10	§..........	§..........	20	24 50	19 00
Champaign	5	15 00	15 00	21	57 00	36 00
Clark	......	....	....	......	....	....
Clermont	......	....	....	9	6 00	5 00
Clinton	6	68 00	20 00	10	49 00	21 00
Columbiana	......	....	....	18	33 00	28 00
Coshocton	27	117 75	55 00	......	....	....
Crawford	4	§..........	§..........	6	§..........	§..........
West Cuyahoga	67	65 50	29 00	14	....	....
East Cuyahoga	68	90 25	42 25	61	55 25	39 75
Darke	......	....	....	4	27 00	14 40
Erie	48	110 00	100 70	68	55 00	32 00
Fairfield	......	....	....	......	....	....
Fulton	16	15 00	15 00	......	79 00	49 75
Geauga	9	15 50	9 00	302	120 75	96 25
Greene	......	....	....	......	....	....
Guernsey	8	9 50	5 50	16	17 50	15 50
Hamilton	4	125 50	107 00	......	....	....
Hancock	4	10 00	10 00	2	10 00	10 00
Hardin	......	....	....	......	....	....
Harrison	8	54 00	16 00	8	20 00	11 50
Jefferson	5	42 25	5 50	23	66 50	26 10
Lawrence	......	....	....	......	....	....
Licking	......	....	....	......	....	....
Logan	‡51	140 00	84 85	......	....	....
Lorain	......	....	....	......	125 00	70 00
Madison	......	....	....	......	....	....
Mahoning	47	107 00	70 00	......	....	....
Marion	6	110 00	110 00	......	....	....
Medina	27	64 00	45 25	......	....	....
Meigs	......	....	....	......	....	....
Mercer	31	89 00	52 00	28	97 00	73 00
Miami	5	50 00	50 00	......	....	....
Monroe	......	....	....	......	....	....
Montgomery	......	....	....	12	120 00	115 00
Morgan	34	42 75	16 00	......	....	....
Morrow	......	....	....	......	....	....
Muskingum	......	28 00	....	5	69 00	6 00
Noble	11	28 50	12 00	24	96 00	35 50
Paulding	......	....	....	......	....	....
Perry	......	†20 00	....	......	....	....

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Machinery and Agricultural Implements.			Manufactures.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Pike	......	$15 00	....	......	....	....
Portage	8	15 00	$9 00	10	$60 25	$12 00
Preble	2	40 00	40 00	14	78 50	54 50
Putnam	†54	160 00	61 50	......	....	....
Richland	10	41 00	29 00	......	....	....
Sandusky	50	44 75	39 50	113	199 75	110 00
Scioto	7	41 50	14 50	......	....	....
Seneca	......	....	....	*186	96 00	48 00
Shelby	......	....	....	......	....	....
Stark	......	....	....	......	....	....
Summit	25	34 00	32 00	70	94 50	65 00
Trumbull	......	....	....	......	....	....
Tuscarawas	1	10 00	10 00	......	....	....
Union	......	....	....	......	....	....
Van Wert	63	92 00	84 00	15	167 00	89 00
Warren	......	....	....	25	51 00	13 00
Washington	22	41 00	20 00	51	46 00	18 00
Wayne	......	....	....	......	....	....
Williams	13	18 65	12 25	1	10 00	6 00
Wood	115	§..........	....	30	....	....
Wyandot	4	12 00	12 00	7	25 00	23 00
Total	1,184	$2,285 15	$1,416 80	1,330	$2,164 50	$1,271 55

§ Diplomas.
† Includes Manufactures.
* Includes Farm Products.
‡ Includes Vehicles.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Farm Products.			Fruits and Flowers.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	236	$89 00	$82 50	92	$47 00	$39 75
Allen	364	84 00	99 50	43	13 25	17 50
Ashtabula	326	122 25	76 00	360	118 15	69 00
Athens	65	75 00	19 00	268	226 00	86 00
Auglaize	1,030	400 00	307 50	190	181 00	172 50
Belmont	120	133 75	71 00	121	99 50	48 00
Brown	620	125 00	115 00	370	95 00	85 00
Butler	323	164 50	142 20	238	101 00	84 15
Carroll	173	63 00	46 75	326	73 00	44 00
Champaign	456	132 00	118 00	421	168 50	118 50
Clark	146	96 50	71 25	435	498 50	389 00
Clermont	440	75 65	57 10	650	207 80	150 35
Clinton	197	145 00	94 00	78	106 00	29 00
Columbiana	343	102 00	101 00	454	149 00	141 00
Coshocton	326	194 75	192 25	224	175 75	122 25
Crawford	307	220 00	82 35	359	200 00	58 25
West Cuyahoga	208	100 70	61 90	185	74 85	35 30
East Cuyahoga	309	60 25	96 45	224	82 85	99 05
Darke	442	230 00	172 12	433	158 50	112 95
Erie	118	109 00	100 60	172	123 00	50 45
Fairfield	294	249 00	214 00	280	271 50	239 50
Fulton	229	94 50	....	246	132 90	79 25
Geauga	......	....	....	526	127 05	89 60
Greene	109	110 00	108 25	73	170 00	160 50
Guernsey	526	127 00	74 50	50	62 00	27 75
Hamilton	214	92 50	87 50	150	517 75	497 50
Hancock	65	235 00	93 00	107	170 00	86 00
Hardin	88	113 75	57 25	......	....	....
Harrison	40	45 50	15 70	147	42 00	23 00
Jefferson	115	53 55	42 90	146	55 50	45 80
Lawrence	149	57 30	48 10	71	47 30	22 50
Licking	113	180 00	81 00	190	220 25	139 50
Logan	§287	181 90	68 40	168	148 95	122 25
Lorain	......	....	....	......	300 00	210 00
Madison	156	231 00	165 50	301	130 75	102 50
Mahoning	381	170 00	114 35	407	162 05	152 10
Marion	434	170 20	123 90	282	137 50	131 25
Medina	292	36 55	62 55	370	79 70	113 25
Meigs	97	43 50	42 00	87	37 25	14 25
Mercer	204	75 00	67 25	212	119 00	66 00
Miami	294	169 25	148 00	414	137 50	107 00
Monroe	400	88 25	40 25	191	96 00	68 25
Montgomery	463	704 75	383 50	321	411 60	151 15
Morgan	78	34 75	19 25	93	51 50	13 75
Morrow	318	83 25	63 00	†1,109	†614 00	†420 25
Muskingum	91	151 55	137 55	92	220 50	198 69
Noble	84	126 80	36 75	6	47 50	3 75
Paulding	115	76 05	21 36	198	91 25	21 89
Perry	122	61 75	58 00	77	78 75	33 50

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Farm Products.			Fruits and Flowers.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Pike	69	$25 55	$19 50	25	$28 50	$22 75
Portage	781	89 70	39 85	342	148 20	103 00
Preble	336	281 00	199 00	349	128 50	110 25
Putnam	635	200 00	104 20	531	80 00	62 55
Richland	371	157 50	142 75	162	65 50	49 75
Sandusky	287	108 75	80 30	250	124 00	108 25
Scioto	247	117 65	67 50	283	141 20	90 50
Seneca	‡.....	....	....	......	....	....
Shelby	200	....	67 50	67	71 75	65 00
Stark	318	167 20	130 45	426	258 00	238 10
Summit	590	278 85	245 95	525	320 85	190 30
Trumbull	165	57 00	33 00	386	109 75	87 50
Tuscarawas	282	116 75	72 25	......	....	....
Union	......	130 00	100 00	......	150 00	125 00
Van Wert	1,548	430 00	351 00	712	240 00	110 00
Warren	194	72 50	63 25	128	103 75	86 25
Washington	162	106 65	99 50	19	10 00	10 00
Wayne	95	123 65	105 05	58	63 65	34 10
Williams	161	63 80	40 05	242	132 10	58 75
Wood	639	415 50	394 25	......	147 00	109 00
Wyandot	311	98 00	87 75	143	46 00	24 50
Total	19,698	$9,525 05	$6,923 38	16,605	$9,946 95	$6,978 28

† Includes Household Productions and Fine Arts.
‡ See Manufactures.
§ Includes Fruits.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Household Productions.			Fine Arts.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Adams	1,030	$222 50	$222 00	187	$95 00	$76 50
Allen	1,230	265 75	273 75	1,590	442 50	410 95
Ashtabula	1,058	243 80	217 45	161	142 25	105 00
Athens	145	75 00	41 50	16	24 00	14 00
Auglaize	1,807	611 00	367 50	720	180 00	168 36
Belmont	389	186 00	49 10	14	20 25	5 00
Brown	600	125 00	115 00	35	15 00	15 00
Butler	1,086	326 00	268 20	329	156 00	136 80
Carroll	579	161 00	123 65	37	59 00	44 00
Champaign	916	264 50	247 50	1,079	372 00	240 25
Clark	700	393 20	267 85	327	350 00	298 55
Clermont	1,403	215 50	199 95	226	116 50	86 25
Clinton	109	135 00	53 00	42	96 00	21 00
Columbiana	395	125 00	91 00	17	23 00	16 00
Coshocton	745	265 90	261 25	403	132 00	127 00
Crawford	334	262 00	218 00	1,140	560 00	588 50
West Cuyahoga	463	137 30	101 45	58	33 10	23 75
East Cuyahoga	587	155 55	106 30	260	156 75	134 00
Darke	960	320 00	209 70	1,478	602 50	535 34
Erie	405	149 00	60 00	312	155 00	132 00
Fairfield	546	288 50	253 50	451	246 00	246 00
Fulton	728	256 00	219 00	216	238 00	162 10
Geauga	1,061	195 50	195 50	109	105 50	76 50
Greene	411	190 00	171 50	217	115 75	105 75
Guernsey	708	85 50	123 00	106	27 00	5 00
Hamilton	953	267 75	263 75	516	163 50	162 00
Hancock	188	259 00	132 25	331	284 00	244 46
Hardin	449	325 75	174 60	138	98 00	69 50
Harrison	154	159 70	51 30	17	31 25	10 00
Jefferson	685	209 65	198 80	56	58 80	43 65
Lawrence	174	93 55	47 30	12	13 75	6 50
Licking	530	410 50	364 00	472	463 00	350 00
Logan	1,039	356 39	263 70	572	368 25	236 48
Lorain	......	225 00	70 00	......	275 00	100 91
Madison	749	380 75	290 25	70	102 25	60 75
Mahoning	650	153 00	128 30	151	117 00	112 00
Marion	857	290 25	199 45	278	176 00	150 75
Medina	686	202 30	189 65	122	138 70	91 50
Meigs	342	133 75	128 75	5	11 00	....
Mercer	671	377 00	287 50	213	103 50	87 50
Miami	1,398	569 50	540 00	485	277 50	269 00
Monroe	276	95 25	45 20	150	52 25	25 25
Montgomery	1,495	470 00	409 75	290	194 50	169 00
Morgan	196	64 00	33 25	18	29 75	7 50
Morrow	†.....	....	....	†.....	....	....
Muskingum	130	70 50	49 15	245	130 50	78 31
Noble	34	134 75	15 75	2	85 00	1 50
Paulding	305	340 00	48 46	342	334 30	110 27
Perry	116	159 75	74 55	3	30 00	2 00

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Household Productions.			Fine Arts.		
	Number of entries.	Amount offered.	Amount awarded.	Number of entries.	Amount offered.	Amount awarded.
Pike	110	$75 75	$36 00	......	....	....
Portage	410	173 65	112 60	51	$52 50	$25 00
Preble	1,211	275 00	158 75	425	231 00	217 50
Putnam	1,600	400 00	300 60	2,891	950 00	885 00
Richland	133	174 00	99 75	14	24 00	3 00
Sandusky	796	255 05	223 70	146	117 00	88 75
Scioto	377	108 00	75 40	13	28 50	6 25
Seneca	1,031	405 00	268 00	197	265 00	138 00
Shelby	543	298 00	291 15	1,261	750 00	329 57
Stark	701	291 00	263 25	192	302 75	295 75
Summit	1,229	245 55	204 40	382	166 05	158 90
Trumbull	518	120 50	101 75	142	65 50	49 50
Tuscarawas	308	96 00	87 00	42	54 00	28 20
Union	......	....	....	......	200 00	160 00
Van Wert	1,548	400 00	353 40	200	465 00	347 10
Warren	851	210 25	150 25	35	42 75	20 00
Washington	319	260 40	95 40	130	40 00	18 00
Wayne	503	250 10	211 80	124	88 00	83 25
Williams	1,339	261 50	202 55	975	400 65	229 64
Wood	......	282 75	258 25	......	191 80	182 80
Wyandot	399	160 00	103 65	3,509	185 00	146 75
Total	44,398	$16,145 09	$12,060 01	24,747	$12,620 40	$9,575 39

† See Fruits and Flowers.

TABLE II—ENTRIES AND AWARDS—Continued.

Counties.	Merchandise.		
	Number of entries.	Amount offered.	Amount awarded.
Adams	5	$16 00	$10 00
Allen	10	§..........	§..........
Ashtabula	8	10 50	5 00
Athens	85	36 00	22 25
Auglaize	......	....	....
Belmont	......	....	....
Brown	......	....	16 08
Butler	......	....	....
Carroll	210	....	90 55
Champaign	......	....	....
Clark	......	....	....
Clermont	......	....	....
Clinton	19	65 00	23 00
Columbiana	......	....	....
Coshocton	8	140 00	60 00
Crawford	14	80 00	36 00
West Cuyahoga	39	70 50	34 50
East Cuyahoga	61	65 10	35 50
Darke	30	565 00	486 00
Erie	......	....	....
Fairfield	......	....	....
Fulton	120	152 30	104 00
Geauga	3	6 00	3 00
Greene	......	....	....
Guernsey	98	66 00	50 00
Hamilton	525	190 00	190 00
Hancock	6	95 00	44 00
Hardin	......	10 00	....
Harrison	8	16 00	12 00
Jefferson	131	56 85	46 12
Lawrence	......	....	....
Licking	......	....	....
Logan	......	....	....
Lorain	......	150 00	76 56
Madison	......	....	....
Mahoning	9	12 50	11 50
Marion	50	111 00	56 50
Medina	......	....	....
Meigs	......	....	....
Mercer	......	....	....
Miami	......	....	....
Monroe	370	....	123 60
Montgomery	......	....	....
Morgan	9	6 00	3 00
Morrow	......	....	....
Muskingum	37	109 25	66 80
Noble	1	13 50	3 00
Paulding	12	78 50	26 75
Perry	......	....	....

TABLE II.—ENTRIES AND AWARDS—Concluded.

Counties.	Merchandise.		
	Number of entries.	Amount offered.	Amount awarded.
Pike	7	....	....
Portage	13	$66 25	$28 50
Preble	......	....	....
Putnam	41	400 00	252 83
Richland	17	62 00	42 00
Sandusky	......	....	....
Scioto	......	....	....
Seneca	......	....	22 00
Shelby	......	....	....
Stark	6	92 00	17 00
Summit	7	21 50	14 00
Trumbull	......	....	....
Tuscarawas	......	....	....
Union	......	100 00	100 00
Van Wert	......	....	....
Warren	41	31 50	31 50
Washington	47	200 00	90 50
Wayne	3	36 00	10 00
Williams	32	73 20	38 25
Wood	......	45 00	36 00
Wyandot	19	67 00	34 00
Total	2,101	$3,315 45	$2,352 29

§ Diplomas.

TABLE III—PROPERTY, RECEIPTS, DISBURSEMENTS, ETC., OF COUNTY AGRICULTURAL SOCIETIES IN 1905.

Counties.	Number of acres in Fair Grounds.	Grounds owned by the society or leased.	If owned, cash value of real estate and improvements thereon.	Amount of indebtedness, if any, on all accounts.	Number of members.	Time of annual election.
Adams	16½	Owned	$8,000 00	$1,890 00	149	January 28.
Allen	30	Leased	....	....	1,020	September 15
Ashtabula	24	Owned	6,000 00	1,370 00	211	January 5.
Athens	27	Owned	15,000 00	4,500 00	84	December 30.
Auglaize	40	Owned	15,000 00	....	14	September 29.
Belmont	16	Owned	....	....	16	August 30.
Brown	20	Owned	12,000 00	100 00	618	January 20.
Butler	57	Owned	57,000 00	16,000 00	10	October 5.
Carroll	28	Owned	8,000 00	2,300 00	14	January 7.
Champaign	50	Owned	15,000 00	....	107	January 21.
Clark	47	*Owned	100,000 00	1,671 20	161	December 9.
Clermont	24	Owned	10,000 00	650 00	931	January 28.
Clinton	30	Leased	....	....	30	August 24.
Columbiana	27	Owned	15,000 00	3,000 00	575	November 3.
Coshocton	38	Owned	35,000 00	2,400 00	329	January 9.
Crawford	30	*Owned	8,000 00	1,100 00	291	October 12.
West Cuyahoga	20	Owned	20,000 00	250 00	177	January 28.
East Cuyahoga	62	Owned	....	....	22	January 28.
Darke	44	Owned	30,000 00	....	2,466	September 1.
Erie	45	*Owned	40,000 00	....	366	November 8.
Fairfield	76	Owned	75,000 00	18,000 00	373	January 28.
Fulton	40	Owned	7,500 00	....	148	January 2.
Geauga	22	Owned	....	1,200 00	750	January 11.
Greene	40	Leased	....	....	525	August 10-11.
Guernsey	28	Owned	5,000 00	....	24	January 5.
Hamilton	47	*Owned	40,000 00	950 00	432	August 17.

Hancock	70	Owned	18,000 00	1,900 00	558	January 28.
Hardin	45½	Owned	6,000 00	4,030 00	30	January 28.
Harrison	40	Leased	...	...	26	January 14.
Jefferson	13¼	Leased	...	...	502	November 4.
Lawrence	12	Leased	...	...	100	January 6.
Licking	80	Owned	75,000 00	5,273 35	12	October 28.
Logan	37	Owned	20,000 00	2,540 84	2,000	January 28.
Lorain	31	Owned	55,000 00	7,359 82	498	January 28.
Madison	46	Owned	18,000 00	150 00	1,285	January 3.
Mahoning	45	Owned	6,000 00	...	170	November 1.
Marion	47	*Owned	25,000 00	...	355	January 14.
Medina	27¾	Owned	8,000 00	...	316	January.
Meigs	74	Owned	15,000 00	15,000 00	40	October 14.
Mercer	47	Owned	30,000 00	2,200 00	15	August 25.
Miami	62	Owned	30,000 00	...	24	November 7.
Monroe	35	Owned	25,000 00	8,000 00	146	January 28.
Montgomery	42	*Owned	150,000 00	...	22	May 6.
Morgan	28	Owned	3,000 00	2,700 00	104	January 28.
Morrow	35	Owned	10,000 00	250 00	303	October 6.
Muskingum	44	Owned	60,000 00	14,850 00	247	January 28.
Noble	11	Owned	3,000 00	23 73	25	January 28.
Paulding	33	Owned	9,500 00	1,500 00	600	September 8.
Perry	20	Leased	...	600 00	50	January 21.
Pike	...	Leased	...	450 00	33	January 28.
Portage	22¾	Owned	10,000 00	7,000 00	524	January 14.
Preble	40	Owned	15,000 00	1,500 00	13	September 15.
Putnam	40	Owned	28,000 00	925 35	340	January 28.
Richland	30	*Owned	25,000 00	213 00	427	September 9.
Sandusky	35	Owned	12,000 00	1,000 00	2,000	February 4.
Scioto	20	Leased	...	350 00	48	January 28.
Seneca	47	Leased	...	600 00	223	December 7.
Shelby	43	*Owned	30,000 00	...	...	...
Stark	53	*Owned	45,000 00	15,000 00	259	January 14.
Summit	47	Owned	52,000 00	15,000 00	65	January 14.
Trumbull	39	Owned	25,000 00	5,000 00	334	November 18.
Tuscarawas	29	Owned	41,000 00	12,500 00	12	January 14.
Union	50	Owned	10,000 00	3,052 32	14	December 16.
Van Wert	37½	Owned	17,000 00	3,000 00	...	September 14.
Warren	33	Leased	10,000 00	...	389	September 22.

TABLE III—PROPERTY, RECEIPTS, DISBURSEMENTS, ETC., OF COUNTY AGRICULTURAL SOCIETIES IN 1905—Continued.

Counties.	Number of acres in Fair Grounds.	Grounds owned by the society or leased.	If owned, cash value of real estate and improvements thereon.	Amount of indebtedness, if any, on all accounts.	Number of members.	Time of annual election.
Washington	33	Owned	$15,000 00	$11,000 00	418	September 7.
Wayne	40	*Owned	8,500 00	1,900 00	140	January 7.
Williams	39	Owned	9,000 00	2,400 00	532	September 15.
Wood	57	Owned	20,000 00	....	421	January 2.
Wyandot	32	Leased	....	....	120	November 4.
Total	2,621¼		$1,460,500 00	$202,649 61	23,583	

*Owned by county.

Where less than twenty-five members are indicated, the number undoubtedly refers to members of the board of directors.

TABLE III—PROPERTY, RECEIPTS, DISBURSEMENTS, ETC., OF COUNTY AGRICULTURAL SOCIETIES IN 1905—Continued.

Counties.	Cash in treasury at beginning of fiscal year.	Amount received from gate admissions.	Amount received from entry fees.
Adams	....	$1,331 65	$83 85
Allen	....	3,433 70	521 10
Ashtabula	$1,134 76	3,646 94	1,410 30
Athens	749 51	2,189 30	176 60
Auglaize	150 92	4,793 45	881 80
Belmont	146 25	1,529 00	249 75
Brown	1,532 10	3,008 05	8 00
Butler	3,594 08	8,079 50	1,260 00
Carroll	1 33	2,318 20	965 00
Champaign	2,999 83	3,468 92	1,668 10
Clark	106 02	4,800 00	1,836 01
Clermont	57 36	2,135 15	240 50
Clinton	100 10	1,955 20	837 80
Columbiana	1,331 11	2,848 75	443 00
Coshocton	....	6,646 88	894 40
Crawford	....	3,403 00	534 60
West Cuyahoga	41 13	1,981 05	1,029 30
East Cuyahoga	108 98	2,420 65	206 80
Darke	1,498 23	5,964 47	989 50
Erie	78 54	1,776 50	910 80
Fairfield	....	8,900 50	1,350 00
Fulton	150 00	3,242 95	595 00
Geauga	91 65	2,835 25	370 00
Greene	193 91	2,883 25	723 60
Guernsey	642 51	2,465 26	262 25
Hamilton	21 66	8,272 80	1,700 00

TABLE III—PROPERTY, RECEIPTS, DISBURSEMENTS, ETC., OF COUNTY AGRICULTURAL SOCIETIES IN 1905—Continued.

Counties.	Cash in treasury at beginning of fiscal year.	Amount received from gate admissions.	Amount received from entry fees.
Hancock	92 94	3,978 75	728 85
Hardin	534 81	2,540 00	861 00
Harrison	101 91	1,779 55	420 00
Jefferson	865 78	2,269 55	614 15
Lawrence	204 41	888 28	175 70
Licking	91 83	5,668 15	1,316 82
Logan	43 20	3,894 82	1,468 00
Lorain	....	4,526 15	450 65
Madison	972 20	4,625 68	1,756 19
Mahoning	1,492 78	4,624 25	826 30
Marion	1,100 37	4,256 50	905 00
Medina	591 35	2,864 95	401 25
Meigs	39 89	2,425 75	164 75
Mercer	3,300 00	3,711 75	647 50
Miami	3,653 86	5,961 31	2,194 30
Monroe	148 95	3,324 20	520 30
Montgomery	2,168 14	9,341 80	3,049 00
Morgan	286 13	1,204 25	200 00
Morrow	....	3,254 00	1,093 80
Muskingum	95 27	5,690 02	152 45
Noble	409 74	590 20	212 50
Paulding	....	2,279 75	659 74
Perry	....	1,641 00	470 95
Pike	120 72	1,302 30	360 40
Portage	....	1,728 70	473 60
Preble	754 52	5,569 75	482 50

Putnam	....	6,841 05	634 00
Richland	831 11	1,511 40	957 40
Sandusky	688 77	6,092 45	757 80
Scioto	175 13	860 87	345 50
Seneca	1,504 00	2,929 00	195 00
Shelby	295 72	3,643 30	921 40
Stark	....	3,736 85	944 85
Summit	83 22	9,008 26	1,496 60
Trumbull	808 26	3,045 85	375 00
Tuscarawas	1,843 00	1,653 40	811 10
Union	265 63	2,698 50	113 00
Van Wert	643 41	5,647 15	100 40
Warren	....	2,916 85	791 00
Washington	....	4,370 60	570 00
Wayne	....	1,532 40	584 10
Williams	763 77	4,261 35	408 75
Wood	795 80	7,450 25	218 00
Wyandot	....	2,191 25	480 40
Total	$40,496 60	$256,662 26	$51,458 06

TABLE III—PROPERTY, RECEIPTS, DISBURSEMENTS, ETC., OF COUNTY AGRICULTURAL SOCIETIES IN 1905—Continued.

Counties.	Amount received from booth rents and privilege permits.	Amount received from other sources.	Amount paid in premiums.	Amount paid for real estate, buildings and permanent improvements.	Amount paid for current expenses other than premiums.	Amount paid on old indebtedness.	Balance cash in treasury.	Amount of unpaid bills and accounts, if any, for current year.
Adams	$325 50	$472 50	$1,477 75	$313 75	$517 70	....	....	$95 70
Allen	890 05	888 65	3,400 00	98 05	2,755 63	$775 77	....	1,295 95
Ashtabula	833 30	808 00	3,603 95	3,300 00	2,253 38	....	....	30 00
Athens	310 00	1,736 11	1,125 75	....	1,456 99	1,680 00	$898 78	....
Auglaize	2,364 97	239 49	4,749 84	978 68	1,737 10	522 00	443 01	....
Belmont	404 00	1,563 67	1,602 10	712 98	669 50	800 00	108 09	....
Brown	450 00	861 07	1,581 08	3,203 65	1,071 58	....	2 91	....
Butler	2,512 20	4,021 06	6,170 99	1,530 70	5,960 18	1,000 00	4,894 97	....
Carroll	756 05	1,674 82	2,741 95	1,000 00	1,971 36	....	2 09	....
Champaign	1,040 00	612 56	4,775 38	2,449 96	1,995 03	....	569 04	....
Clark	1,905 00	4,073 05	7,120 30	1,250 00	4,020 98	500 00	....	171 20
Clermont	622 25	661 45	2,459 65	149 82	908 21	....	199 03	....
Clinton	540 00	1,096 21	2,764 50	....	1,658 81	....	6 00	....
Columbiana	513 00	1,002 00	1,849 50	449 31	1,569 16	....	2,269 89	....
Coshocton	1,980 86	610 05	5,706 90	1,758 20	2,968 55	....	....	301 46
Crawford	850 00	2,707 00	3,120 60	1,641 00	2,013 05	81 57	638 38	1,100 00
West Cuyahoga	566 00	2,306 95	2,862 65	1,617 43	1,427 15	....	17 20	....
East Cuyahoga	481 00	932 35	2,202 65	189 18	1,033 74	....	724 21	....
Darke	2,606 70	1,580 05	6,353 38	1,032 48	5,212 59	....	40 50	....
Erie	385 00	2,515 50	902 00	301 83	4,268 53	....	193 98	....
Fairfield	1,565 25	1,253 00	6,381 00	3,500 00	1,500 00	1,500 00	3,269 15	....
Fulton	646 00	685 95	2,675 00	150 00	1,365 87	....	1,129 00	....
Geauga	531 35	905 13	2,656 20	....	1,746 67	300 00	30 51	....
Greene	1,002 69	1,852 60	3,742 75	850 00	1,878 33	....	184 97	....

Guernsey	334 00	764 20	2,320 45	792 20	793 11	....	562 46	....
Hamilton	1,906 04	3,904 00	6,546 50	209 17	8,796 29	200 00	52 54	....
Hancock	700 00	334 45	4,259 46	398 94	1,167 94	....	8 65	662 88
Hardin	685 00	1,116 26	1,137 60	2,850 00	1,321 00	....	428 47	....
Harrison	226 22	142 23	1,622 50	401 60	....	14 48	631 33	422 50
Jefferson	592 56	1,949 64	2,912 40	854 00	886 64	....	1,638 64	....
Lawrence	52 80	2,435 04	708 31	2,210 00	756 01	....	81 91	....
Licking	1,924 20	1,800 00	5,008 50	1,745 68	2,383 62	1,422 65	240 55	273 35
Logan	2,162 75	1,249 25	4,381 68	1,798 70	2,517 64	120 00	....	140 84
Lorain	874 12	1,966 42	2,083 97	3,100 82	1,307 37	1,325 18	....	....
Madison	862 00	2,899 30	5,425 50	3,100 00	2,146 35	144 50	299 02	150 00
Mahoning	788 30	825 00	3,114 80	2,107 55	2,177 09	....	1,157 19	....
Marion	1,141 00	809 71	4,093 35	2,172 56	1,790 67	100 00	56 00	56 00
Medina	662 75	333 75	2,550 30	799 49	1,265 43	43 65	195 18	....
Meigs	445 25	92 25	1,598 90	292 79	912 33	361 82	2 05	....
Mercer	2,263 93	1,773 20	4,141 78	....	5,394 36	1,700 16	460 08	2,200 00
Miami	1,761 50	2,073 79	6,513 00	2,500 00	3,059 60	....	3,572 16	....
Monroe	605 00	2,447 27	2,661 05	2,607 28	1,744 10	....	33 29	....
Montgomery	2,764 00	2,633 71	8,944 40	1,107 23	6,447 11	....	3,457 91	....
Morgan	190 75	179 00	847 40	35 45	644 81	390 00	142 47	25 00
Morrow	976 90	2,612 41	3,175 75	2,158 90	2,548 14	....	55 32	....
Muskingum	1,151 70	2,786 81	1,998 70	199 22	6,806 98	871 35	....	76 35
Noble	144 80	12 00	576 25	275 65	541 07	....	....	23 73
Paulding	600 00	1,256 49	2,658 46	....	1,095 85	1,022 81	18 86	....
Perry	500 60	651 82	1,639 75	....	916 75	636 82	58 80	50 00
Pike	200 00	516 61	1,303 50	178 00	716 84	300 00	1 69	100 00
Portage	527 00	1,552 32	2,555 70	100 75	1,342 95	....	183 00	100 00
Preble	1,601 25	2,329 09	4,924 50	730 04	5,639 92	....	....	....
Putnam	2,013 95	1,946 79	5,899 83	2,609 98	3,219 02	....	....	....
Richland	299 00	1,374 27	2,586 10	494 25	1,502 57	236 00	154 26	213 03
Sandusky	711 00	1,104 75	2,633 75	1,669 15	4,392 51	1,610 42	48 94	1,000 00
Scioto	338 00	333 01	1,559 65	75 25	263 35	....	154 26	....
Seneca	642 00	1,622 00	2,558 00	2,600 00	1,998 00	....	37 00	140 00
Shelby	898 00	522 50	3,693 97	1,297 93	1,738 15	....	....	....
Stark	808 50	3,205 15	4,190 85	953 00	1,937 62	37 40	956 65	189 00
Summit	1,623 00	3,457 30	2,994 50	1,080 79	9,440 68	....	2,152 61	120 83
Trumbull	892 33	637 62	2,056 15	885 65	1,860 40	500 00	427 30	29 56
Tuscarawas	552 50	2,655 34	2,101 15	4,526 50	837 08	....	50 61	....
Union	640 00	500 00	754 00	84 14	....	....	....	1,880 00
Van Wert	1,763 25	7,716 58	6,301 25	3,828 12	3,397 58	1,984 22	359 62	....

TABLE III—PROPERTY, RECEIPTS, DISBURSEMENTS, ETC., OF COUNTY AGRICULTURAL SOCIETIES IN 1905—Concluded.

Counties.	Amount received from booth rents and privilege permits.	Amount received from other sources.	Amount paid in premiums.	Amount paid for real estate, buildings and permanent improvements.	Amount paid for current expenses other than premiums.	Amount paid on old indebtedness.	Balance cash in treasury.	Amount of unpaid bills and accounts, if any, for current year.
Warren	718 15	148 55	2,628 25	....	1,893 33	....	53 32	250 00
Washington	781 75	1,807 65	1,007 65	387 61	5,435 61	674 31	....	150 00
Wayne	250 00	2,130 95	2,338 15	....	400 00	1,647 99	94 50	16 81
Williams	858 25	1,679 18	2,983 89	1,457 88	1,874 44	1,007 00	648 09	....
Wood	2,637 00	6,493 82	3,016 40	3,255 53	9,827 33	....	1,495 61	....
Wyandot	761 50	209 00	2,817 15	614 91	920 80	....	....	710 71
Total	$67,913 77	$114,049 70	$223,851 02	$85,023 73	$168,018 53	$23,510 10	$35,502 05	$11,974 90

OHIO STATE FAIR

—AND—

INDUSTRIAL EXPOSITION

COLUMBUS, September 4, 5, 6, 7 and 8, 1905.

The Ohio State Fair and Industrial Exposition for 1905 was held on the permanent park grounds at Columbus, September 4, 5, 6, 7 and 8, and from all standpoints was the most successful exposition in the history of the State. The beautiful park grounds were in superb condition, as copious rains the week previous to the Fair had the effect of imparting new life to the shrubbery and flowering plants, while the lawns presented the appearance of a lovely covering of velvet, making the park feature of the grounds one of great beauty.

In harmony with the beautiful park surroundings the seventeen mammoth exhibition buildings towered majestically above the stately trees, and with the emblem of freedom floating from every point of vantage on these buildings, it was indeed an inspiring sight, and strongly called to mind our greatness as a nation and as a state; and, imbued with this spirit, the visitors were able to more intelligently judge the exhibits; the lessons imparted were more firmly rooted, and they entered into the pleasures of the day with light hearts, determined to not only add to their general knowledge by a careful inspection of the exhibits, but aſso to enjoy an outing amid such scenes of grandeur.

The exhibits in each department were representative of the best of Ohio's varied products, and the interest displayed, both by visitors and exhibitors, was evidence that the people of the State appreciate this opportunity of viewing and studying Ohio's valuable resources; and the lessons learned are of value to every citizen in the State.

While it is impossible, in these few lines, to properly enumerate the educational value and interest displayed in each department, division and class of the Fair, suffice it to say that they were all in keeping with the high standard of the exhibits of former years. The live stock buildings were crowded with the finest animals, stables, herds and flocks of the State, and the lessons presented here will result in better breeds of live stock, and the elimination of the chance or scrub breeds, thereby enhancing the live stock values of the State many thousands of dollars.

The merchants' and manufacturers' department was replete with interesting displays, and was daily thronged with interested sight-seers. As usual the woman's department was a center of interest for the fair sex, and the dainty work here shown was the admiration of all. The beauty of arrangement of the exhibits in the fruit and farm products department attacted wide attention, and especially was this true of the county displays. One section of this building was devoted to a working dairy, where practical demonstrations were daily given in the art of butter and cheese making.

There is perhaps no department of the Fair in which the people as a whole are more vitally interested than in that of machinery. The past year the Board erected two mammoth machinery halls, and these buildings were crowded with the latest labor-saving devices in shop and farm machinery, while in the open, acres of ground were devoted to the display of operative exhibits, all combining to make this department one of the most interesting on the grounds.

Another structure dedicated at the Fair was the imposing building devoted to the exhibition of poultry and pet stock. This structure is similar in architectural design to the live stock buildings, and was necessitated by the yearly increased demands for space in this department. It is thoroughly equipped with exhibition coops and is so arranged that the different varieties of birds can be shown collectively, that their inspection can be made systematically. That the new building was appreciated by poultry fanciers is proven by the fact that almost three thousand birds were on exhibition.

The Ohio State Fair is now equipped with the finest buildings of any similar institution in the Union, and the annual exhibitions are the pride of every citizen of the State. The exhibitions are under the direct control of the Ohio State Board of Agriculture, and aside from the administrative department, in charge of the Secretary, the different departments were in charge of the following members of the Board, assisted by the superintendents named:

ADMINISTRATIVE.

General Headquarters—
WM. MILLER, President .... Gypsum.

Executive Department—
W. W. MILLER, Secretary .... Columbus

Financial Department—
T. L. CALVERT, Treasurer .... Selma

EXHIBITION.

Members in Charge and Superintendents.

First Department .... **Horses**
C. H. Ganson, Urbana, Member in Charge.
B. I. Jones, Granville, Superintendent.

Second Department .... **Cattle**
L. P. Bailey, Tacoma, Member in Charge.
H. A. Lamson, Van Wert, Superintendent.

Third Department .... **Sheep**
E. L. Lybarger, Spring Mountain, Member in Charge.
Uriah Cook, Lunda, Superintendent.

Fourth Department .... **Swine**
A. P. Sandles, Ottawa, Member in Charge.
Alf. Dunlap, Rushmore, Superintendent.

Fifth Department .... **Poultry**
A. P. Sandles, Ottawa, Member in Charge.
D. W. Light, Columbus Grove, Superintendent.

Sixth Department.. **Farm Products**
J. L. Carpenter, Carpenter, Member in Charge.
R. J. Tussing, Canal Winchester, Superintendent.

Seventh Department .... **Fruits**
J. L. Carpenter, Carpenter, Member in Charge.
F. H. Ballou, Wooster, Superintendent.
F. H. Stevens, Newark, Assistant Superintendent.

Seventh Department.. **Plants and Flowers**
J. L. Carpenter, Carpenter, Member in Charge.
F. H. Ballou, Wooster, Superintendent.

Eighth Department.................................. **Machinery and Implements**
R. O. Hinsdale, Wadsworth, Member in Charge.
P. G. Ewart, East Akron, F. R. D. 22, Superintendent.
Carl Williams, Columbus, Assistant Superintendent.
Gus. Seiberling, Barberton, F. R. D., Assistant Superintendent.

Ninth Department...................... **Mechanics' and Manufacturers' Products**
T. E. Cromley, Ashville, Member in Charge.
S. D. Killian, Columbus, Superintendent.

Tenth Department.. **Merchandise, Music, Etc.**
T. E. Cromley, Ashvile, Member in Charge.
G. F. Ramsey, Columbus, Superintendent.

Eleventh Department.. **Woman's Work**
Sam'l Taylor, Grove City, Member in Charge.
Miss D. G. Cherry, Newark, Superintendent.
Mrs. N. T. Connell, Portsmouth, Assistant Superintendent.
W. K. Vaughan, Grove City, Assistant Superintendent.

Twelfth Department..**Fine Arts**

Sam'l Taylor, Grove City, Member in Charge.
Jos. H. Stone, Newark, Superintendent.
Mrs. Mary B. Madden, Wilmington, Assistant Superintendent.

On the following pages will be found a complete list of the awards where there was premium competition, and also a list of the exhibits in the departments where no premiums were offered.

Respectfully submitted,
W. W. MILLER, *Secretary.*

LIST OF AWARDS

OHIO STATE FAIR 1905.

FIRST DEPARTMENT—HORSES.

C. H. GANSON, Member in Charge.

ROADSTERS—STANDARD BRED.

Name of Owner.	Postoffice.	Awards.	Amount.
F. J. Jameson	Delaware, O.	Best Stallion 4 Years or Over	$20 00
C. G. Smith	Reynoldsburg, O	2d Best	10 00
Heskett & Brimbee	Fulton, O.	Best Stallion 1 Year and Under 2	15 00
Heskett & Brimbee	Fulton, O.	Best Stallion Colt Under 1 Year	10 00
Seymour Smith	Pataskala, O.	2d Best	5 00
Heskett & Brimbee	Fulton, O.	Best Mare 4 Years or Over	20 00
Mrs. F. A. Burns	Columbus, O.	2d Best	10 00
Seymour Smith	Pataskala, O.	Best Mare 2 Years and Under 3	15 00
Heskett & Brimbee	Fulton, O.	2d Best	5 00
C. G. Smith	Reynoldsburg, O	Best Get of Sire	20 00
Heskett & Brimbee	Fulton, O.	2d Best	10 00
Heskett & Brimbee	Fulton, O.	Best Produce of Mare	15 00

ROADSTERS—NON-STANDARD

Name of Owner.	Postoffice.	Awards.	Amount.
C. M. Leonard	Delaware, O.	Best Stallion 4 Years or Over	$20 00
A. A. Yost	Thornville, O.	2d Best	10 00
Chas. W. Fairchild	Pataskala, O.	Best Stallion 3 Years and Under 4	20 00
H. Donovan, Agt	Columbus, O.	Best Stallion 2 Years and Under 3	15 00
B. F. Parsell	Reynoldsburg, O	2d Best	5 00
Richard Cover	London, O.	Best Stallion 1 Year and Under 2	15 00
H. Donovan, Agt	Columbus, O.	2d Best	5 00
R. N. Watkins	London, O.	Best Stallion Colt Under 1 Year	10 00
C. G. Smith	Reynoldsburg, O.	2d Best	5 00
Thos. Herbert	Hilliard, O.	Best Mare 4 Years or Over	20 00
Woodland Stock Farm	Williamsport, O.	2d Best	10 00
B. F. Parsell	Reynoldsburg, O.	Best Mare 3 Years and Under 4	15 00
Henry C. Geyer	Camp Chase, O.	2d Best	5 00
J. W. H. Stalter	Wagram, O.	Best Mare 2 Years and Under 3	15 00
Heskitt & Brimbee	Fulton, O.	2d Best	5 00
B. F. Parsell	Reynoldsburg, O.	Best Filly 1 Year and Under 2	10 00
Curtis B. Smith	Camp Chase, O.	2d Best	5 00
W. M. Fisher	Camp Chase, O.	Best Filly Colt Under 1 Year	8 00
Sam Nooner	Camp Chase, O.	2d Best	4 00
Heskett & Brimbee	Fulton, O.	Best Get of Sire	20 00
B. F. Parsell	Reynoldsburg, O.	2d Best	10 00
Heskett & Brimbee	Fulton, O.	Best Produce of Mare	15 00
R. N. Watkins	London, O.	2d Best	8 00

FRENCH COACH.

Name of Owner.	Postoffice.	Awards.	Amount.
McLaughlin Bros	Columbus, O	Best Stallion 4 Years or Over	$20 00
McLaughlin Bros	Columbus, O	2d Best	10 00
McLaughlin Bros	Columbus, O	Best Stallion 3 Years and Under 4	20 00
McLaughlin Bros	Columbus, O	2d Best	10 00
McLaughlin Bros	Columbus, O	Best Stallion 2 Years and Under 3	15 00
McLaughlin Bros	Columbus, O	Best Get of Sire	20 00
McLaughlin Bros	Columbus, O	Best Produce of Mare	15 00

GERMAN COACH.

Name of Owner.	Postoffice.	Awards.	Amount.
Hartman Stock Farm	Columbus, O	Best Stallion 4 Years or Over	$20 00
Hartman Stock Farm	Columbus, O	2d Best	10 00
Hartman Stock Farm	Columbus, O	Best Stallion 3 Years and Under 4	20 00
Hartman Stock Farm	Columbus, O	2d Best	10 00
Hartman Stock Farm	Columbus, O	Best Stallion 2 Years and Under 3	15 00
Hartman Stock Farm	Columbus, O	2d Best	5 00
Hartman Stock Farm	Columbus, O	Best Stallion 1 Year and Under 2	15 00
Hartman Stock Farm	Columbus, O	Best Mare 3 Years and Under 4	15 00
Hartman Stock Farm	Columbus, O	2d Best	5 00
Hartman Stock Farm	Columbus, O	Best Mare 2 Years and Under 3	15 00
Hartman Stock Farm	Columbus, O	Best Get of Sire	20 00
Hartman Stock Farm	Columbus, O	Best Produce of Mare	15 00

FRENCH DRAFT AND BELGIAN.

Name of Owner.	Postoffice.	Awards.	Amount.
McLaughlin Bros	Columbus, O	Best Stallion 4 Years or Over	$20 00
Geo. W. Crawford	Newark, O	2d Best	10 00
Geo. W. Crawford	Newark, O	Best Stallion 3 Years and Under 4	20 00
Geo. W. Crawford	Newark, O	2d Best	10 00
Geo. W. Crawford	Newark, O	Best Stallion 2 Years and Under 3	15 00
McLaughlin Bros	Columbus, O	2d Best	5 00
McLaughlin Bros	Columbus, O	Best Stallion 1 Year and Under 2	15 00
Geo. W. Crawford	Newark, O	2d Best	5 00
W. W. Ferguson	Delaware, O	Best Stallion Colt Under 1 Year	10 00
J. Michael	Camp Chase, O	2d Best	5 00
H. L. Donigan	Sunbury, O	Best Mare 4 Years or Over	20 00
W. W. Ferguson	Delaware, O.	2d Best	10 00
W. W. Ferguson	Delaware, O.	Best Mare 3 Years and Under 4	15 00
Geo. W. Crawford	Newark, O	Best Mare 2 Years and Under 3	15 00
W. W. Ferguson	Delaware, O	2d Best	5 00
Geo. W. Crawford	Newark, O	Best Filly 1 Year and Under 2	10 00
H. L. Donigan	Sunbury, O	2d Best	5 00
H. L. Donigan	Sunbury, O	Best Filly Colt Under 1 Year	8 00
Geo. W. Crawford	Newark, O	Best Get of Sire	20 00
McLaughlin Bros	Columbus, O	2d Best	10 00
Geo. W. Crawford	Newark, O	Best Produce of Mare	15 00
McLaughlin Bros	Columbus, O	2d Best	8 00

PERCHERONS.

Name of Owner.	Postoffice.	Awards.	Amount.
McLaughlin Bros	Columbus, O	Best Stallion 4 Years or Over	$20 00
Hartman Stock Farm	Columbus, O	2d Best	10 00
McLaughlin Bros	Columbus, O	Best Stallion 3 Years and Under 4	20 00
Hartman Stock Farm	Columbus, O	2d Best	10 00
McLaughlin Bros	Columbus, O	Best Stallion 2 Years and Under 3	15 00
McLaughlin Bros	Columbus, O	2d Best	5 00
McLaughlin Bros	Columbus, O	Best Stallion 1 Year and Under 2	15 00
G. W. Crawford	Newark, O	2d Best	5 00

PERCHERONS—Concluded.

Name of Owner.	Postoffice.	Awards.	Amount.
H. L. Donigan	Sunbury, O.	Best Stallion Colt Under 1 Year	$10 00
Hartman Stock Farm	Columbus, O.	Best Mare 4 Years or Over	20 00
Hartman Stock Farm	Columbus, O.	2d Best	10 00
Hartman Stock Farm	Columbus, O.	Best Mare 3 Years and Under 4	15 00
McLaughlin Bros	Columbus, O.	Best Mare 2 Years and Under 3	15 00
Hartman Stock Farm	Columbus, O.	2d Best	5 00
Hartman Stock Farm	Columbus, O.	Best Filly 1 Year and Under 2	10 00
G. W. Crawford	Newark, O.	2d Best	5 00
Evans Price	Radnor, O.	Best Filly Colt Under 1 Year	8 00
Elliott Bros	Hilliard, O.	2d Best	4 00
Frank Roselot	Lerado, O.	Best Get of Sire	20 00
McLaughlin Bros	Columbus, O.	Best Get of Sire	20 00
McLaughlin Bros	Columbus, O.	2d Best	10 00
McLaughlin Bros	Columbus, O.	Best Produce of Mare	20 00

CLYDESDALES AND SHIRES.

Name of Owner.	Postoffice.	Awards.	Amount.
McLaughlin Bros	Columbus, O.	Best Stallion 4 Years or Over	$20 00
McLaughlin Bros	Columbus, O.	Best Stallion 3 Years and Under 4	20 00
Leonard & Leonard	London, O.	Best Stallion 1 Year and Under 2	15 00
Leonard & Leonard	London, O.	2d Best	5 00
Leonard & Leonard	London, O.	Best Stallion Colt Under 1 Year	10 00
Leonard & Leonard	London, O.	2d Best	5 00
Leonard & Leonard	London, O.	Best Mare 4 Years or Over	20 00
Leonard & Leonard	London, O.	2d Best	10 00
Leonard & Leonard	London, O.	Best Mare 3 Years and Under 4	15 00
Leonard & Leonard	London, O.	Best Mare 2 Years and Under 3	15 00
Leonard & Leonard	London, O.	Best Filly 1 Year and Under 2	10 00
Leonard & Leonard	London, O.	Best Get of Sire	20 00
Leonard & Leonard	London, O.	Best Produce of Mare	15 00
Leonard & Leonard	London, O.	2d Best	8 00

GRADE DRAFT.

Name of Owner.	Postoffice.	Awards.	Amount.
Hartman Stock Farm	Columbus, O.	Best Gelding or Mare 4 Years or Over	$10 00
Hartman Stock Farm	Columbus, O.	2d Best	5 00
William Stephens	Ashley, O.	Best Gelding or Mare 3 Years and Under 4	10 00
C. M. Jones	Plain City, O.	2d Best	5 00
Herbert R. Gibson	Camp Chase, O.	Best Gelding or Mare 2 Years and Under 3	10 00
Geo. Garlinghouse	Johnstown, O.	Best Gelding or Mare 1 Year and Under 2	10 00
H. L. Donigan	Sunbury, O.	2d Best	5 00
William Stephens	Ashley, O.	Best Matched Team	15 00
Geo. Garlinghouse	Johnstown, O.	2d Best	8 00

AMERICAN BRED DRAFT.

Name of Owner.	Postoffice.	Awards.	Amount.
John Yost & Sons	Thornville, O.	Best Stallion 4 Years or Over	$20 00
C. M. Jones	Plain City, O.	2d Best	10 00
C. M. Jones	Plain City, O.	Best Stallion 3 Years and Under 4	20 00
Chas. F. Richmond	London, O.	2d Best	10 00
Evan Price	Radnor, O.	Best Stallion 2 Years and Under 3	15 00
C. M. Jones	Plain City, O.	2d Best	5 00
Jno. Yost & Sons	Thornville, O.	Best Stallion 1 Year and Under 2	15 00
G. B. Hoover	Grove City, O.	2d Best	5 00
Jno. Yost & Sons	Thornville, O.	Best Stallion Colt Under 1 Year	10 00
B. Barler	Delaware, O.	2d Best	5 00
C. M. Jones	Plain City, O.	Best Mare 4 Years or Over	20 00
Leonard & Leonard	London, O.	2d Best	10 00

AMERICAN BRED DRAFT—Concluded.

Name of Owner	Postoffice.	Awards.	Amount.
C. M. Jones	Plain City, O.	Best Mare 3 Years and Under 4	$15 00
W. E. Garlinghouse	Galena, O.	Best Mare 2 Years and Under 3	15 00
Jno. Yost & Sons	Thornville, O.	2d Best	5 00
Jno. Yost & Sons	Thornville, O.	Best Filly 1 year and Under 2	10 00
Jno. Yost & Sons	Thornville, O.	2d Best	5 00
Jno. Yost & Sons	Thornville, O.	Best Filly Colt Under 1 Year	8 00
H. L. Donigan	Sunbury, O.	2d Best	4 00
C. M. Jones	Plain City, O.	Best Sire and Get	20 00
Jno. Yost & Sons	Thornville, O.	2d Best	10 00
Leonard & Leonard	London, O.	Best Mare and Produce	15 00
Evan Price	Radnor, O.	2d Best	8 00

SADDLE HORSES.

Name of Owner.	Postoffice.	Awards.	Amount.
H. Donovan, Agt	Columbus, O.	Best Stallion Under 4 Years	$15 00
James Kinkead	Columbus, O.	Best Mare 4 Years or Over	20 00
H. Donovan, Agt	Columbus, O.	2d Best	10 00
L. K. Rose	Cardington, O.	Best Gelding 4 Years or Over	20 00
T. M. Byers	Columbus, O.	2d Best	10 00

COMBINED HARNESS AND SADDLE CLASS.

Name of Owner.	Postoffice.	Awards.	Amount.
H. Donovan, Agt	Columbus, O	Best Stallion Any Age	$20 00
James Kinkead	Columbus, O.	Best Mare Any Age	20 00
H. Donovan, Agt	Columbus, O.	2d Best	10 00
L. K. Rose	Cardington, O.	Best Gelding Any Age	20 00
T. M. Byers	Columbus, O.	2d Best	10 00

HIGH SCHOOL CLASS.

Name of Owner.	Postoffice.	Awards.	Amount.
T. M. Byers	Columbus, O.	Best Horse, Mare or Gelding Any Age	$25 00
A. W. Vennis	Columbus, O.	2d Best	15 00

HARNESS CLASS.

Name of Owner.	Postoffice.	Awards.	Amount.
Woodland Stock Farm	Williamsport, O.	Best Pair Matched Roadsters to Road Wagon or Buggy	$20 00
S. H. Marvin	Columbus, O.	2d Best	10 00
C. L. Brown	Thornville, O.	Best Single Driver to Road Wagon or Buggy	10 00
S. H. Marvin	Columbus, O.	2d Best	5 00
J. H. Winder	Columbus, O.	Best Coach Team to Coach or Heavy Carriage	20 00
C. F. Richmond	London, O.	2d Best,	10 00
J. H. Winder	Columbus, O.	Best Single Coach Mare or Gelding to Appropriate Vehicle	10 00
C. F. Richmond	London, O.	2d Best	5 00
S. H. Marvin	Columbus, O.	Best Park Mare or Gelding to Appropriate Vehicle	10 00
Heskett & Brimbee	Fulton, O.	2d Best	5 00
Chas. F. Richmond	London, O.	Best Four-in-hand Team to Coach or Brake	20 00
J. H. Winder	Columbus, O.	Best Tandem Team to Two-wheeled Cart	10 00
C. F. Richmond	London, O.	2d Best	5 00

SHETLAND PONIES.

Name of Owner.	Postoffice.	Awards.	Amount.
Harry J. Smith	Mt. Vernon, O	Best Stallion 3 Years or Over	$15 00
Cobb Gavitt	Ashley, O	2d Best	8 00
Cepter Gregg	Sunbury, O	Best Stallion 2 Years and Under 3	10 00
Cobb Gavitt	Ashley, O	2d Best	5 00
Cobb Gavitt	Ashley, O	Best Stallion 1 Year and Under 2	8 00
L. J. Cox, Agt	Columbus, O	2d Best	4 00
Cobb Gavitt	Ashley, O	Best Stallion Colt Under 1 Year	5 00
G. W. Sperry & Son	Utica, O	2d Best	3 00
Cepter Gregg	Sunbury, O	Best Mare 3 Years or Over	15 00
Cobb Gavitt	Ashley, O	2d Best	8 00
Ralph I. Loewer	Columbus, O	Best Mare 2 Years and Under 3	10 00
Cobb Gavitt	Ashley, O	2d Best	5 00
Cobb Gavitt	Ashley, O	Best Filly 1 Year and Under 2	8 00
L. J. Cox, Agt	Columbus, O	2d Best	4 00
Cepter Cregg	Sunbury, O	Best Filly Colt Under 1 Year	5 00
L. J. Cox, Agt	Columbus, O	2d Best	3 00
Cobb Gavitt	Ashley, O	Best Herd of Ten Head	10 00

IN HARNESS TO APPROPRIATE VEHICLES.

Name of Owner.	Postoffice.	Awards.	Amount.
Cobb Gavitt	Ashley, O	Best Single Turnout	$10 00
T. M. Byers	Columbus, O	2d Best	5 00
Cobb Gavitt	Ashley, O	Best Double Team Turnout	15 00
L. J. Cox, Agt	Columbus, O	2d Best	8 00
Cobb Gavitt	Ashley, O	Best Four-in-hand	15 00
Geo. W. Sperry & Son	Utica, O	2d Best	8 00
T. M. Byers	Columbus, O	Best Pony Under Saddle	8 00
Cepter Gregg	Sunbury, O	2d Best	4 00

PONIES—OTHER THAN SHETLAND.

Name of Owner.	Postoffice.	Awards.	Amount.
Myron F. Smith	Plain City, O	Best Stallion 3 Years or Over	$15 00
Cobb Gavitt	Ashley, O	2d Best	8 00
Cobb Gavitt	Ashley, O	Best Stallion 2 Years and Under 3	10 00
Cobb Gavitt	Ashley, O	Best Stallion Under 2 Years	5 00
Cobb Gavitt	Ashley, O	Best Mare 3 Years or Over	15 00
B. F. Parsell	Reynoldsburg, O	2d Best	8 00
Cobb Gavitt	Ashley, O	Best Mare 2 Years and Under 3	10 00
Cobb Gavitt	Ashley, O.	Best Filly Under 2 Years	5 00
Harry R. Smith	Mt. Vernon, O	2d Best	3 00

IN HARNESS TO APPROPRIATE VEHICLES.

Name of Owner.	Postoffice.	Awards.	Amount.
Cobb Gavitt	Ashley, O	Best Single Turnout	$10 00
L. J. Cox, Agt	Columbus, O	2d Best	5 00
W. O. Conn	Sunbury, O	Best Double Team Turnout	15 00
Cobb Gavitt	Ashley, O	2d Best	8 00
Cobb Gavitt	Ashley, O	Best Four-in-hand	15 00
Harry R. Smith	Mt. Vernon, O	2d Best	8 00
L. K. Rose	Cardingson, O	Best Pony Under Saddle	8 00
L. J. Cox, Agt	Columbus, O	2d Best	4 00

SUMMARY OF THE RACES.

2:40 CLASS PACING—PURSE $300.

Entered By	Name of Animal.	Heats.
Wm. Herron	Lady D	6 dr.
Thos. R. Neilson	Mozart Wilkes	1 1 2 8 3
Henry Bloom	Egonine	7 5 4 5 7
J. M. Morrison	Dessie O	dis.
A. B. Grove	Bessie G	5 4 6 2 2
W. Brown	Guy Reeder	2 2 3 6 8
Harry Close	Nancy C	dis.
C. A. Valentine	Harry B	3 7 1 1 1
L. Vernon	Dempsey V	9 8 8 7 6
Howard Edwards	The Margarete	8 6 7 3 5
F. G. Stillings	Roslyn Wilkes	4 3 5 4 4

Time—2:19¼, 2:21, 2:21¼, 2:22¼, 2:21¾.

2:42 CLASS TROTING—PURSE $300.

Entered By.	Name of Animal.	Heats.
P. Gahagan	D. C	7 6 7
N. M. Spratt	Diamond Dick	3 3 3
O. S. Jones	Tom Tillicum	6 5 6
Cliff Todd	Queen	9 7 5
A. B. Grove	Dorothy Dorsey	8 9 dr.
H. B. Spelman	Togo Admiral	4 8 2
Wm. Herron	Dewey on Land	2 2 8
Oak Lawn Farm	Will McGregor	1 1 1
C. A. Valentine	Carrie B	10 10 9
H. W. Colville	John C	5 4 4

Time—2:25¼, 2:24¼, 2:25.

2:20 CLASS PACING—PURSE $400.

Entered By.	Name of Animal.	Heats.
H. Tallman	Senator Bashford	2 3 4
Geo. W. Glover	Geneto G	5 5 3
C. E. Barr	Black Slipper	6 4 5
L. D. Commons	Dr. W. W. Z	1 1 1
H. Edwards	Jolly Bird	4 2 2
A. L. Padgitt	Dan P	3 6 dis

Time—2:20¼, 2:19½, 2:19¼.

2:28 CLASS TROTTING—PURSE $400.

Entered By.	Name of Animal.	Heats.
A. B. Grove	Angie G	4 2 4 4 4
C. W. Bethel	Clay C	2 3 2 2 3
Cliff Todd	Little Chester	3 4 1 1 1
C. E Price	Carrie Axinite	1 1 3 3 2

Time—2:26¼, 2:30½, 2:25¼, 2:26, 2:25¼.

2:15 CLASS PACING—PURSE $500.

Entered By.	Name of Animal.	Heats.		
T. P. Finley	Lucky Jim	5	6	6
Geo. W. Glover	F. Nightingale	1	1	1
A. L. Padgitt	Fair Oaks	6	5	4
Harry Heath	St. Patrick	2	3	3
E. H. Hill	Rocket	4	2	2
W. F. Willoughby	Lizzie B	3	4	5

Time—2:15¼, 2:14¼, 2:14¼.

2:25 CLASS PACING—PURSE $400.

Entered By.	Name of Animal.	Heats.		
B. F. Yates	Thaddie Burns	2	5	6
A. B. Grove	Baby Burns	5	4	4
E. W. Smith	Jerry	3	6	5
D. M. Bell	The Expert	6	3	3
N. W. Spratt	Leopard Rose	4	2	2
C. E. Price	Mountain Gem	1	1	1

Time—2:17¼, 2:19¼, 2:17¼.

2:37 CLASS TROTTING—PURSE $400.

Entered By.	Name of Animal.	Heats.		
N. W. Spratt	Diamond Dick	2	2	5
H. B. Spelman	Al-Me-Leaf	1	1	1
L. D. Commons	The American	5	4	2
Ed. Williard	Dode L.	4	3	4
Cliff Todd	Queen	3	5	3

Time—2:20¼, 2:20¼, 2:20¼.

2:35 CLASS PACING—PURSE $400.

Entered By.	Name of Animal.	Heats.		
Harry Close	Nancy C.	1	1	1
T. H. Rafferty	Fanny M.	3	3	2
C. A. Valentine	Harry B.	2	2	3

Time—2:26¼, 2:28¼, 2:26¼.

2:23 CLASS TROTTING—PURSE $400.

Entered By.	Name of Animal.	Heats.			
A. L. Padgitt	Bourbon Jay	7	5	5	3
H. J. Jameson	Black Star	4	4	4	4
Oak Lawn Farm	Wildomar	5	6	dr.	
J. E. Renick	Woodlyn	6	7	3	5
E. W. Swisher	Little Bridget	1	2	2	2
L. D. Commons	Christine Bright	3	3	6	6
C. E. Price	Robt. Volens	2	1	1	1

Time—2:24¼, 2:22¼, 2:22¼, 2:22¼.

FREE-FOR-ALL PACE—PURSE $600.

Entered By.	Name of Animal.	Heats.
Howard Edwards	Jolly Bird	2 1 2 2 2
Ed. M. Vietmeier	Regina	3 2 1 1 1
Geo. H. Ketcham	Robert Lee	1 dr.

Time—2:19, 2:19¼, 2:21¼, 2:23, 2:23.

2:18 CLASS TROTTING—PURSE $400.

Entered By.	Name of Animal.	Heats.
Ed. Williard	Electric Bow	2 3 3 5 1 4
Rothrock & Mark	Dr. Chase	5 4 1 1 2 1
Mrs. C. E. Worline	Jesse Clay	4 5 2 4 5
W. Bresnahan	Charley Atwood	1 2 4 3 3 3
C. W. Bethel	Don	3 1 5 2 4 2

Time—2:19¼, 2:19¼, 2:19¼, 2:19¼, 2:20, 2:20.

2:14 CLASS TROTTING—PURSE $500.

Entered By.	Name of Animal.	Heats.
A. L. Padgitt	Kindest Kind	1 1 1
J. Janes	Foxie Oliver	2 3 4
H. J. Jameson	Birtena	4 4 2
Cliff Todd	Flandraw	3 2 3

Time—2:20¼, 2:19¼, 2:18¼.

2:30 CLASS PACING—PURSE $400.

Entered By.	Name of Animal.	Heats.
F. G. Stillings	Roslyn Wilkes	5 4 3 1 1 1
Wm. Herron	Lady D	1 2 5 5 4 3
W. Brown	Guy Reeder	3 5 4 2 2
Thos. R. Neilson	Mozart Wilkes	2 1 1 3 5 2
B. F. Yates	Thaddie Burns	4 3 2 4 3

Time—2:20¼, 2:19¼, 2:20, 2:22¼, 2:23½, 2:24.

2:32 CLASS TROTTING—PURSE $400.

Entered By.	Name of Animal.	Heats.
Harry Close	Russler Wilkes	dis.
Jas. Skelton	Jo. Astral	1 1 1
P. Gahagan	D. C.	2 4 3
H. W. Colville	John C.	3 2 5
H. B. Spelman	Admiral Togo	4 5 4
Oak Lawn Farm	Will McGregor	5 3 2
T. E. Baxter	Rythm	dis.

Time—2:21¼, 2:21½, 2:21½.

SECOND DEPARTMENT--CATTLE.

L. P. BAILEY, Member in Charge.

SHORTHORNS..

Name of Owner.	Postoffice.	Awards..	Amount.
J. G. Robbins & Sons	Horace, Ind.	Best Bull 3 Years or Over—Bud Means	$20 00
W. I. Wood	Williamsport, O.	2d Best ... Choice of the Ring	15 00
R. K. Beam & Son	Ansonia, O.	3d Best ... Gay Abbottsburn	8 00
Carpenter & Ross	Mansfield, O.	Best Bull 2 Years and Under 3—White Hall Count	20 00
W. I. Wood	Williamsport, O.	Best Bull 1 Year and Under 2—Woodland Coronet	15 00
R. K. Beam & Son	Ansonia, O.	2d Best ... Molica Archer	10 00
Geo. E. Butler	Belle Center, O	3d Best ... Goodnuf	6 00
Carpenter & Ross	Mansfield, O.	Best Bull 6 Months and Under 1 Year—Avondale	15 00
N. S. McKay	Xenia, O	2d Best ... Bobby Burns	10 00
R. K. Beam & Son	Ansonia, O	3d Best ... Royal Ben	6 00
C. Hintz & Sons	Fremont, O.	4th Best ... Scottish Lad III	5 00
W. I. Wood	Williamsport, O.	5th Best ... Lovet Ring	4 00
Geo. E. Butler	Belle Center, O	Best Bull Under 6 Months—Cicero	15 00
N. S. McKay	Xenia, O	2d Best ... Whitehall Ruby	10 00
J. G. Robbins & Sons	Horace, Ind.	Best Cow 3 Years or Over—Breeder's Dream	20 00
Carpenter & Ross	Mansfield, O.	2d Best ... Avalanche II	15 00
C. Hintz & Sons	Fremont, O	3d Best ... Lady Duster	8 00
Carpenter & Ross	Mansfield, O.	Best Cow or Heifer 2 Years and Under 3—Chrysanthemum	20 00
J. G. Robbins & Sons	Horace, Ind	2d Best ... Huckleberry	15 00
J. G. Robbins & Sons	Horace, Ind	3d Best ... Carnation	8 00
W. I. Wood	Williamsport, O.	Best Heifer 1 Year and Under 2—Isabelle	15 00
J. G. Robbins & Sons	Horace, Ind	2d Best ... Pluto's Berry	10 00
W. I. Wood	Williamsport, O.	3d Best ... Rose Scott	6 00
J. G. Robbins & Sons	Horace, Ind	Best Heifer 6 Months and Under 1 Year—Slippers	15 00
Carpenter & Ross	Mansfield, O.	2d Best ... Rose of Strath-Spey	10 00
J. G. Robbins & Sons	Horace, Ind	3d Best ... Lad's Ruby	6 00
N. S. McKay	Xenia, O.	4th Best ... Pretty Maid	5 00
W. I. Wood	Williamsport, O.	5th Best ... FairyMorning	4 00
C. Hintz & Sons	Fremont, O.	Best Heifer Under 6 Months—Beauty of Mermaid	15 00
R. K. Beam & Son	Ansonia, O	2d Best ... Lovely Bess	10 00
N. S. McKay	Xenia, O.	3d Best ... Flower Girl	6 00
Carpenter & Ross	Mansfield, O.	4th Best ... Sultan'sDuchess of Gloster	5 00
J. G. Robbins & Sons	Horace, Ind	Best Exhibitor's Herd	30 00
Carpenter & Ross	Mansfield, O.	2d Best	15 00
W. I. Wood	Williamsport, O.	3d Best	7 00
J. G. Robbins & Sons	Horace, Ind	Best Breeder's Young Herd	30 00
W. I. Wood	Williamsport, O.	2d Best	15 00
Carpenter & Ross	Mansfield, O.	3d Best	7 00
Carpenter & Ross	Mansfield, O.	Best Get of Sire	20 00
R. K. Beam & Son	Ansonia, O.	2d Best	10 00
C. Hintz & Sons	Fremont, O.	3d Best	5 00
N. S. McKay	Xenia, O.	Best Produce of Cow	20 00
R. K. Beam & Son	Ansonia, O	2d Best	10 00
W. I. Wood	Williamsport, O.	Best 4 Calves, Either Sex	20 00
W. I. Wood	Williamsport, O.	2d Best	10 00
C. Hintz & Sons	Fremont, O.	3d Best	5 00

HEREFORDS.

Name of Owner.	Postoffice.	Awards.	Amount
S. W. Anderson	Blaker Mills, W.Va.	Best Bull 3 Years or Over—Actor XXVI	$15 00
Avery & Hines Co.	Alto Pass, Ill.	2d Best ... William	10 00
F. A. Nave	Attica, Ind.	3d Best ... Dearborn Stamp	5 00
F. A. Nave	Attica, Ind.	Best Bull 2 Years and Under 3—Wilkeswood Chief	15 00
S. W. Anderson	Blaker Mills, W.Va.	2d Best ... Actor XXX	10 00
A. C. Huxley,	Bunker Hill, Ind	Best Bull 1 Year and Under 2—Perfection Fairfax	10 00
S. W. Anderson	Blaker Mills, W.Va.	2d Best ... Mapleton	5 00
F. A. Nave	Attica, Ind.	3d Best ... Prime Star Grove	3 00

HEREFORDS—Concluded.

Name of Owner	Postoffice.	Awards.	Amount.
F. A. Nave	Attica, Ind.	Best Bull Under 1 Year—Perfection I Am	$10 00
S. W. Anderson	Blaker Mills, W.Va.	2d Best ... Actor XLII	5 00
F. A. Nave,	Attica, Ind.	3d Best ... Duke of Richmond	3 00
Avery & Hines	Alto Pass, Ill.	Best Cow 3 Years or Over—Retta II	15 00
F. A. Nave	Attica, Ind.	2d Best ... Beryl	10 00
J. B. Fernow	Leesburg, O	3d Best ... Lady Good Saxon 119937	5 00
S. W. Anderson	Blaker Mills, W.Va.	Best Cow or Heifer 2 Years and Under 3—Alexia	15 00
Avery & Hines	Alto Pass, Ill	2d Best ... Java Peppa	10 00
F. A. Nave	Attica, Ind.	3d Best ... Jessamine	5 00
F. A. Nave	Attica, Ind.	Best Heifer 1 Year and Under 2—Lady Albany XVI	10 00
A. C. Huxley	Bunker Hill, Ind.	2d Best ... Cherry Donald	5 00
S. W. Anderson	Blaker Mills, W.Va.	3d Best ... Isabelle	3 00
F. A. Nave	Attica, Ind.	Best Heifer Under 1 Year—Juliette	10 00
A. C. Huxley	Bunker Hill, Ind.	2d Best ... Berna Donald	5 00
S. W. Anderson	Blaker Mills, W.Va.	3d Best ... Winifred	3 00
F. A. Nave	Attica, Ind.	Best Exhibitor's Herd	30 00
S. W. Anderson	Blaker Mills, W.Va.	2d Best	15 00
F. A. Nave	Attica, Ind.	Best Breeder's Young Herd	30 00
A. C. Huxley	Bunker Hill, Ind.	2d Best	15 00
S. W. Anderson	Blaker Mills, W.Va.	Best Get of Sire	20 00
F. A. Nave	Attica, Ind.	2d Best	10 00
Avery & Hines	Alto Pass, Ind	Best Produce of Cow	10 00
A. C. Huxley	Bunker Hill, Ind.	2d Best	5 00

DEVONS.

Name of Owner.	Postoffice.	Awards.	Amount.
James Hilton	New Scotland, N.Y.	Best Bull 3 Years or over—Patriarch	$15 00
U. B. Moyer	Mt. Cory, O.	2d Best ... Royal M	10 00
Roberts Bros.	White Cottage, O	3d Best ... Hidalgo	5 00
U. B. Moyer	Mt. Cory, O.	Best Bull 2 Years and Under 3—Charming Lad	15 00
James Hilton	New Scotland, N.Y.	2d Best ... Harold	10 00
U. B. Moyer	Mt. Cory, O.	Best Bull 1 Year and Under 2—Jimmie Butler	10 00
Roberts Bros.	White Cottage, O.	2d Best ... Colonel	5 00
James Hilton	New Scotland, N.Y.	3d Best ... Duke of Waterville	3 00
Roberts Bros.	White Cottage, O.	Best Bull Under 1 Year	10 00
U. B. Moyer	Mt. Cory, O.	2d Best ... Patrick	5 00
James Hilton	New Scotland, N.Y.	3d Best ... Dragon of Devondale	3 00
James Hilton	New Scotland, N.Y.	Best Cow 3 Years or Over—May D.	15 00
U. B. Moyer	Mt. Cory, O.	2d Best ... Bright Promise	10 00
U. B. Moyer	Mt. Cory, O.	3d Best ... Pride	5 00
James Hilton	New Scotland, N.Y.	Best Cow or Heifer 2 Years and Under 3—Daniel of Devondale	15 00
James Hilton	New Scotland, N.Y.	2d Best ... Daphne of Devondale	10 00
Roberts Bros.	White Cottage, O.	3d Best ... Queen Cassela.	5 00
U. B. Moyer	Mt. Cory, O.	Best Heifer 1 Year and Under 2—Tulip M.	10 00
James Hilton	New Scotland, N.Y.	2d Best ... Dannaly of Devondale	5 00
U. B. Moyer	Mt. Cory, O.	3d Best ... Pansy	3 00
James Hilton	New Scotland N.Y.	Best Heifer Under 1 Year—Diana of Devondale	10 00
U. B. Moyer	Mt. Cory, O.	2d Best ... Belle M	5 00
U. B. Moyer	Mt Cory, O.	3d Best ... Red Silk	3 00
James Hilton	New Scotland, N.Y.	Best Exhibitor's Herd	30 00
U. B. Moyer	Mt. Cory, O.	2d Best	15 00
U. B. Moyer	Mt. Cory, O.	Best Breeder's Young Herd	30 00
Roberts Bros.	White Cottage, O.	2d Best	15 00
James Hilton	New Scotland N.Y.	Best Get of Sire	20 00
U. B. Moyer	Mt. Cory, O.	2d Best	10 00
James Hilton	New Scotland, N.Y.	Best Produce of Cow	10 00
U. B. Moyer	Mt. Cory, Ohio	2d Best	5 00

ABERDEEN-ANGUS

Name of Owner.	Postoffice.	Awards.	Amount.
D. Bradfute & Son	Cedarville, O.	Best Bull 3 Years or Over—Lucy's Prince	$15 00
Wilmer N. Foster	Attica, Ind	2d Best ... Rose Croix Hunter	10 00
Boyd & King	Hillsboro, O.	3d Best ... Buchtell of the Wells	5 00

ABERDEEN-ANGUS—Concluded.

Name of Owner.	Postoffice.	Awards.	Amount.
H. M. Brown	Hillsboro, O.	Best Bull 2 Years and Under 3—Jim Delaney	$15 00
Wilmer N. Foster	Attica, Ind.	Best Bull 1 Year and Under 2—Erast II	10 00
D. Bradfute & Son	Cedarville, O.	Best Bull Under 1 Year—Leslie of Meadowbrook	10 00
H. M. Brown	Hillsboro, O.	2d Best Welk Highlander	5 00
D. Bradfute & Son	Cedarville, O.	3d Best Leo of Meadowbrook	3 00
H. M. Brown	Hillsboro, O.	Best Cow 3 Years or Over	15 00
H. M. Brown	Hillsboro, O.	2d Best	10 00
Wilmer N. Foster	Attica, Ind.	3d Best	5 00
Wilmer N. Foster	Attica, Ind.	Best Cow or Heifer 2 Years and Under 3	15 00
D. Bradfute & Son	Cedarville, O.	2d Best	10 00
H. M. Brown	Hillsboro, O.	3d Best	5 00
D. Bradfute & Son	Cedarville, O.	Best Heifer 1 Year and Under 2	10 00
D. Bradfute & Son	Cedarville, O.	2d Best	5 00
Wilmer N. Foster	Attica, Ind.	3d Best	3 00
D. Bradfute & Son	Cedarville, O.	Best Heifer Under 1 Year	10 00
Wilmer N. Foster	Attica, Ind.	2d Best	5 00
H. M. Brown	Hillsboro, O.	3d Best	3 00
D. Bradfute & Son	Cedarville, O.	Best Exhibitor's Herd	30 00
H. M. Brown	Hillsboro, O.	2d Best	15 00
D. Bradfute & Son	Cedarville, O.	Best Breeder's Young Herd	30 00
H. M. Brown	Hillsboro, O.	2d Best	15 00
D. Bradfute & Son	Cedarville, O.	Best Get of Sire	20 00
H. M. Brown	Hillsboro O.	2d Best	10 00
D. Bradfute & Son	Cedarville, O.	Best Produce of Cow	10 00
D. Bradfute & Son	Cedarville, O.	2d Best	5 00

GALLOWAYS.

Name of Owner.	Postoffice.	Awards.	Amount.
James Frantz	Bluffton, O.	Best Bull 3 Years or Over—Rambler of C. B.	$15 00
James Frantz	Bluffton, O.	Best Bull 1 Year and Under 2—Worthy Yet	10 00
James Frantz	Bluffton, O.	Best Bull Under 1 Year—Fomean of M. G.	10 00
James Frantz	Bluffton, O.	Best Cow 3 Years or Over—Susannah	15 00
James Frantz	Bluffton, O.	Best Cow or Heifer 2 Years and Under 3—Vesta of M.G...	15 00
James Frantz	Bluffton, O.	Best Heifer 1 Year and Under 2—Cecil of Maple Grove..	10 00
James Frantz	Bluffton, O.	Best Heifer Under 1 Year—Susie's Pride	10 00
James Frantz	Bluffton, O.	Best Exhibitor's Herd	30 00
James Frantz	Bluffton, O.	Best Breeder's Young Herd	30 00
James Frantz	Bluffton, O.	Best Get of Sire	20 00
James Frantz	Bluffton, O.	Best Produce of Cow	10 00

POLLED DURHAMS

Name of Owner.	Postoffice.	Awards.	Amount.
Fletcher S. Hines	Mallott Park, Ind.	Best Bull 3 Years or Over—Tippeancoe XLIV	$25 00
J. H. Martz	Greenville, O.	2d Best Tippecanoe LXIV	15 00
R. B. Guy	Mechanicsburg, O.	3d Best King of the Pines	10 00
W. H. Miller & Sons	Mulberry, Ind.	Best Bull 2 Years and Under 3—Grover Abbottsburn	25 00
A. C. Wood & Sons	Pendleton, Ind.	2d Best Orange King	15 00
W. H. Miller & Sons	Mulberry, Ind.	Best Bull 1 Year and Under 2—Mabel's Royal	15 00
J. H. Martz	Greenville O.	2d Best Widdleton VI	10 00
Fletcher S. Hines	Mallott Park, Ind.	3d Best Ruby's Tip	5 00
A. C. Wood & Sons	Pendleton, Ind.	Best Bull Under 1 Year—Orange Boy	15 00
J. H. Martz	Greenville, O.	2d Best Widdleton VII	10 00
W. H. Miller & Sons	Mulberry, Ind.	3d Best Monarch Abbottsburn	5 00
A. C. Wood & Sons	Pendleton, Ind.	Best Cow 3 Years or Over—Emily Craggs II	25 00
Fletcher S. Hines	Mallott Park, Ind.	2d Best Ruby of Buttonwood II	15 00
W. H. Miller & Sons	Mulberry, Ind.	3d Best Sweet Naomi	10 00
A. C. Wood & Sons	Pendleton, Ind.	Best Cow or Heifer 2 Years and Under 3—Pride Princess	25 00
Fletcher S. Hines	Mallott Park, Ind.	2d Best Zaddai	15 00
R. B. Guy	Mechanicsburg, O.	3d Best Harcourt Maid	10 00
A. C. Wood & Sons	Pendleton, Ind.	Best Heifer 1 Year and Under 2—Hero's Maid	15 00
W. H. Miller & Sons	Mulberry, Ind.	2d Best Buttonwood Jennie Lind.	10 00
J. H. Martz	Greenville, O.	3d Best Nonpareil XLVII	5 00

POLLAND DURHAMS—Concluded.

Name of Owner.	Postoffice.	Awards.	Amount
W. H. Miller & Sons	Mulberry, Ind	Best Heifer Under 1 Year—Myrtle Abbottsburn II	$15 00
A. C. Wood & Sons	Pendleton, Ind	2d Best ... Fairy Queen	10 00
W. H. Miller & Sons	Mulberry, Ind	3d Best ... Sugar Mound Queen	5 00
A. C. Wood & Sons	Pendleton, Ind	Best Exhibitor's Herd	40 00
W. H. Miller & Sons	Mulberry, Ind	2d Best	25 00
W. H. Miller & Sons	Mulberry, Ind	Best Breeder's Young Herd	40 00
A. C. Wood & Sons	Pendleton, Ind	2d Best	20 00
A. C. Wood & Sons	Pendleton, Ind	Best Get of Sire	30 00
W. H. Miller & Sons	Mulberry, Ind	2d Best	20 00
Fletcher S. Hines	Mallott Park, Ind.	Best Produce of Cow	20 00
A. C. Wood & Sons	Pendleton, Ind	2d Best	12 00

RED POLLS

Name of Owner.	Postoffice.	Awards.	Amount.
Geo. H. Smith	Chillicothe, O.	Best Bull 3 Years or Over—Rowdy Rod	$15 00
Frank Hawley	Leroy, O	2d Best ... Eclipse	10 00
Wm. Hetsel	Xenia, O.	3d Best ... Orpheus	5 00
Frank Hawley	Leroy, O.	Best Bull 2 Years and Under 3—Balzac	15 00
Border Stock Farm	Tonti, Ill.	2d Best ... Thermal	10 00
Border Stock Farm	Tonti, Ill.	3d Best ... Pochto	5 00
Border Stock Farm	Tonti, Ill.	Best Bull 1 Year and Under 2—Nerod	10 00
Frank Hawley	Leroy, O.	2d Best ... Universal	5 00
G. W. Watkins	Mt. Cory, O.	3d Best ... Efie	3 00
Wm. Hetsel	Xenia, O.	Best Bull Under 1 Year—Henry	10 00
Frank Hawley	Leroy, O.	2d Best ... Balpert	5 00
G. W. Watkins	Mt. Cory, O.	3d Best ... Wayboy	3 00
Frank Hawley	Leroy, O	Best Cow 3 Years or Over—Aurelia	15 00
G. W. Watkins	Mt. Cory, O.	2d Best ... Rosa	10 00
Frank Hawley	Leroy, O	3d Best ... Jessie	5 00
Wm. Hetsel	Xenia, O.	Best Cow or Heifer 2 Years and Under 3—Alice	15 00
Frank Hawley	Leroy, O.	2d Best ... Lottie	10 00
Geo. H. Smith	Chillicothe O.	3d Best ... Miss Gay	5 00
Frank Hawley	Leroy, O.	Best Heifer 1 Year and Under 2—Pert IV	10 00
Wm. Hetsel	Xenia, O.	2d Best ... Hallie II	5 00
Wm. Hetsel	Xenia, O.	3d Best ... Kittie Gilmore	3 00
Wm. Hetsel	Xenia, O.	Best Heifer Under 1 Year—Nannie	10 00
Wm. Hetsel	Xenia, O.	2d Best ... Hallie III	5 00
Border Stock Farm	Tonti, Ill.	3d Best ... Juliette III	3 00
Frank Hawley	Leroy, O.	Best Exhibitor's Herd	30 00
Wm. Hetsel	Xenia, O.	2d Best	15 00
Wm. Hetsel	Xenia, O.	Best Breeder's Young Herd	30 00
Frank Hawley	Leroy, O.	2d Best	15 00
Frank Hawley	Leroy, O.	Best Get of Sire	20 00
Wm. Hetsel	Xenia, O.	2d Best	10 00
Frank Hawley	Leroy, O.	Best Produce of Cow	10 00
Wm. Hetsel	Xenia, O.	2d Best	5 00

HOLSTEINS

Name of Owner.	Postoffice	Awards.	Amount.
F. G. Johnson & Co.	Columbus, O.	Best Bull 3 Years or Over—Prince Lelia De Kol	$15 00
W. B. Smith & Son	Columbus, O	2d Best ... Rosa Bonheur V.'s Colantha Lad ...	10 00
W. B. Smith & Son	Columbus, O	Best Bull 2 Years and Under 3—Johanna De Colantha Lad...	15 00
W. B. Smith & Son	Columbus, O	Best Bull 1 Year and Under 2—Sir Dero Drop De Kol...	10 00
W. B. Smith & Son	Columbus, O	Best Bull Under 1 Year—Sir Robert De Kol	10 00
F. G. Johnson & Co.	Columbus, O	2d Best ... Orrice Pietertje Bonheur	5 00
F. G. Johnson & Co.	Columbus, O	3d Best ... Polla Pietertje Bonheur	3 00
F. G. Johnson & Co.	Columbus, O	Best Cow 3 Years or Over—Wayne Swenoda	15 00
W. B. Smith & Son	Columbus, O	2d Best ... Wing Vergens IV	10 00
W. B. Smith & Son	Columbus, O	3d Best ... Kate Spray II	5 00
W. B. Smith & Son	Columbus, O	Best Cow or Heifer 2 Years and Under 3—Hengee Jelkze	15 00
W. B. Smith & Son	Columbus, O	2d Best ... Artis Leaffy...	10 00
F. G. Johnson & Co.	Columbus, O	3d Best ... Ruby Belle Bonheur...	5 00

HOLSTEINS—Concluded.

Name of Owner.	Postoffice.	Awards.	Amount.
W. B. Smith & Son	Columbus, O.	Best Heifer 1 Year and Under 2—Kate Spray V	$10 00
F. G. Johnson & Co.	Columbus, O.	2d Best ... Concordia Aaggie Bonheur	5 00
F. G. Johnson & Co.	Columbus, O.	3d Best ... Lady Bonheur Clothilde	3 00
W. B. Smith & Son	Columbus, O.	Best Heifer Under 1 Year—Big Spray	10 00
W. B. Smith & Son	Columbus, O.	2d Best ... Viola Mercedes Maid II	5 00
F. G. Johnson & Co.	Columbus, O.	3d Best ... Belle Panarista	3 00
W. B. Smith & Son	Columbus, O.	Best Exhibitor's Herd	30 00
F. G. Johnson & Co.	Columbus, O.	2d Best	15 00
W. B. Smith & Son	Columbus, O.	Best Breeder's Young Herd	30 00
F. G. Johnson & Co.	Columbus, O.	2d Best	15 00
W. B. Smith & Son	Columbus, O.	Best Get of Sire	20 00
F. G. Johnson & Co.	Columbus O.	2d Best	10 00
W. B. Smith & Son	Columbus, O.	Best Produce of Cow	10 00
F. G. Johnson & Co.	Columbus, O.	2d Best	5 00

DUTCH BELTED.

Name of Owner.	Postoffice.	Awards.	Amount.
J. W. Swab	Findlay, O.	Best Bull 3 Years or Over—Diaz	$15 00
J. W Swab	Findlay, O.	Best Bull 2 Years and Under 3—Auten	15 00
J. W. Swab	Findlay, O.	Best Bull 1 Year and Under 2—Lampson	10 00
J. W. Swab	Findlay, O.	Best Bull Under 1 Year—Gridley	10 00
J. W. Swab	Findlay O.	Best Cow 3 Years or Over—Morning Glory	15 00
J. W. Swab	Findlay, O.	Best Cow or Heifer 2 Years and Under 3—Bessie S	15 00
J. W. Swab	Findlay, O.	Best Heifer 1 Year and Under 2—Figgis	10 00
J. W. Swab	Findlay, O.	Best Heifer Under 1 Year	10 00
J. W. Swab	Findlay, O.	Best Exhibitor's Herd	30 00
J. W. Swab	Findlay, O.	Best Breeder's Young Herd	30 00

BROWN SWISS.

Name of Owner.	Postoffice.	Awards.	Amount.
F. R. Hazard	Syracuse, N. Y.	Best Bull 3 Years or Over—Upland Hobby	$15 00
Hull Bros.	Painesville, O.	2d Best ... The Kid	10 00
F. R. Hazard	Syracuse, N. Y.	3d Best ... Upland Jethro	5 00
F. R. Hazard	Syracuse, N. Y.	Best Bull 2 Years and Under 3—Upland Dubois	15 00
F R. Hazard	Syracuse, N. Y.	Best Bull 1 Year and Under 2—Oswego Nick	10 00
F. R. Hazard	Syracuse, N. Y.	2d Best ... Upland Hobby II	5 00
Hull Bros.	Painesville, O.	3d Best ... David H.	3 00
Hull Bros.	Painesville, O.	Best Bull Under 1 Year—John H. II	10 00
F. R. Hazard	Syracuse, N. Y.	2d Best ... Upland Duke Jr.	5 00
Hull Bros.	Painesville, O.	3d Best ... The Kid II	3 00
Hull Bros.	Painesville, O.	Best Cow 3 Years or Over—Annie Darling	15 00
Hull Bros.	Painesville, O.	2d Best ... Bethlehem	10 00
F. R. Hazard.	Syracuse, N. Y.	3d Best ... Florine XII	5 00
Hull Bros.	Painesville, O.	Best Cow or Heifer 2 Years and Under 3—Valley Girl II.	15 00
F. R. Hazard	Syracuse N. Y.	2d Best ... Elisa of River Meadowbrook	10 00
F. R. Hazard	Syracuse, N. Y.	3d Best ... UplandFlorence	5 00
F. R. Hazard	Syracuse N. Y.	Best Heifer 1 Year and Under 2—Upland B	10 00
F. R. Hazard	Syracuse, N. Y.	2d Best ... Upland Elga D.	5 00
Hull Bros.	Painesville, O.	3d Best ... Irene H.	3 00
F. R. Hazard	Syracuse, N. Y.	Best Heifer Under 1 Year—Upland Tell's Florine	10 00
Hull Bros.	Painesville, O.	2d Best ... Perry Maid II.	5 00
F. R. Hazard	Syracuse, N. Y.	3d Best ... Upland Esther	3 00
F. R. Hazard	Syracuse, N. Y.	Best Exhibitor's Herd	30 00
Hull Bros.	Painesville, O.	2d Best	15 00
F. R. Hazard	Syracuse, N. Y.	Best Breeder's Young Herd	30 00
Hull Bros.	Painesville, O.	2d Best	15 00

JERSEYS.

Name of Owner.	Postoffice.	Awards.	Amount.
Belmont Cattle Co	Westerville, O.	Best Bull 2 Years and Under 3—Little Golden Lad	$15 00
Belmont Cattle Co	Westerville, O.	Best Bull Under 1 Year	10 00
Belmont Cattle Co	Westerville, O.	Best Cow or Heifer 2 Years and Under 3—Voxer's Coomasim Maid	15 00
Belmont Cattle Co	Westerville, O.	Best Heifer Under 1 Year	10 00

GUERNSEYS.

Name of Owner.	Postoffice.	Awards.	Amount.
L. V. Axtell	Perry, O.	Best Bull 3 Years or Over—Superior	$15 00
L. V. Axtell	Perry, O.	Best Bull 2 Years and Under 3—Sir Henry	15 00
L. V. Axtell	Perry O.	Best Bull 1 Year and Under 2—St. Louis	10 00
L. V. Axtell	Perry, O.	Best Bull Under 1 Year	10 00
L. V. Axtell	Perry, O.	Best Cow 3 Years or Over—Gold Nannie	15 00
L. V. Axtell	Perry, O.	Best Cow or Heifer 2 Years and Under 3—Viola of Homestead	15 00
L. V. Axtell	Perry, O.	Best Heifer 1 Year and Under 2—Sallie of Homestead	10 00
L. V. Axtell	Perry, O.	Best Heifer Under 1 Year—Lillie Cypress	10 00
L. V. Axtell	Perry, O.	Best Exhibitor's Herd	30 00
L. V. Axtell	Perry, O.	Best Breeder's Young Herd	30 00
L. V. Axtell	Perry, O.	Best Get of Sire	20 00
L. V. Axtell,	Perry, O.	Best Produce of Cow	10 00

AYRSHIRES.

Name of Owner.	Postoffice.	Awards.	Amount.
W. P. Schanck	Avon, N. Y.	Best Bull 3 Years or Over—Cock A. Bendie	$15 00
Howard Cook	Beloit, O.	2d Best ... Dunraven of St. Ames	10 00
Howard Cook	Beloit, O.	Best Bull 2 Years and Under 3—Monarch of St. Ames	15 00
Howard Cook	Beloit, O.	Best Bull 1 Year and Under 2—Flash Lad	10 00
W. P. Schanck	Avon, N. Y.	2d Best ... Dairy King	5 00
Howard Cook	Beloit, O.	Best Bull Under 1 Year—Columbus Boy	10 00
W. P. Schanck	Avon, N. Y.	2d Best ... Douglas of Avon	5 00
W. P. Schanck	Avon, N. Y.	Best Cow 3 Years or Over—Craft Jane Dinah	15 00
W. P. Schanck	Avon, N. Y.	2d Best ... Maud Douglas IV	10 00
Howard Cook	Beloit, O.	3d Best ... Rosa Pender	5 00
Howard Cook	Beloit, O.	Best Cow or Heifer 2 Years and Under 3—Snowball	15 00
W. P. Schanck	Avon, N. Y.	2d Best ... Lady's Fortune	10 00
W. P. Schanck	Avon, N. Y.	3d Best ... Voca of Avon	5 00
W. P. Schanck	Avon, N. Y.	Best Heifer 1 Year and Under 2—Dorris of Avon	10 00
Howard Cook	Beloit, O.	2d Best ... Armetta	5 00
W. P. Schanck	Avon, N. Y.	3d Best ... Zerish of Avon	3 00
W. P. Schanck	Avon, N. Y.	Best Heifer Under 1 Year—Syracuse of Avon	10 00
Howard Cook	Beloit, O.	2d Best ... Iona's Girl	5 00
W. P. Schanck	Avon, N. Y.	3d Best ... Dort of Avon	3 00
W. P. Schanck	Avon, N. Y.	Best Exhibitor's Herd	30 00
Howard Cook	Beloit, O.	2d Best	15 00
W. P. Schanck	Avon, N. Y.	Best Breeder's Young Herd	30 00
Howard Cook	Beloit, O.	2d Best	15 00
Howard Cook	Beloit, O.	Best Get of Sire	20 00
W. P. Schanck	Avon, N. Y.	2d Best	10 00
W. P. Schanck	Avon, N. Y.	Best Produce of Cow	10 00
Howard Cook	Beloit, O.	2d Best	5 00

FAT CATTLE.

Name of Owner.	Postoffice.	Awards.	Amount.
F. A. Nave	Attica, Ind.	Best Steer or Spayed Heifer 2 Years and Under 3—Grade Hereford Steer	$15 00
James Frantz	Bluffton, O.	2d Best ... Steer	10 00
Fletcher S. Hines	Mallott Park, Ind.	Best Steer or Spayed Heifer 1 Year and Under 2	15 00
D. Bradfute & Son	Cedarville, O.	2d Best	10 00

THIRD DEPARTMENT—SHEEP.

E. L. LYBARGER, Member in Charge.

MERINOS—CLASS A.

Name of Owner.	Postoffice.	Awards.	Amount.
S. Blamer & Son	Johnstown, O.	Best Ram 2 Years or Over	$10 00
C. H. Bell	Ashley, O.	2d Best	5 00
R. D. McGonigle & Sons	Ashley, O.	3d Best ... Peck	3 00
A. H. Dean & Son	West Mansfield, O.	Best Ram 1 Year and Under 2	10 00
R. D. McGonigle & Sons	Ashley, O.	2d Best	5 00
R. D. McGonigle & Sons	Ashley, O.	3d Best ... Peck's Best	3 00
S. Blamer & Son	Johnstown, O.	Best Ram Under One Year	8 00
S. Blamer & Son	Johnstown, O.	Best Ewe 2 Years or Over	10 00
C. L. Freed	Lancaster, O.	2d Best	5 00
C. H. Bell	Ashley, O.	3d Best	3 00
A. H. Dean & Son	West Mansfield, O.	Best Ewe 1 Year and Under 2	10 00
S. Blamer & Son	Johnstown, O.	2d Best	5 00
R. D. McGonigle & Sons	Ashley, O.	3d Best	3 00
R. D. McGonigle & Sons	Ashley, O.	Best Ewe Under 1 Year	8 00
S. Blamer &Son	Johnstown, O.	2d Best	4 00
S. Blamer & Son	Johnstown, O.	3d Best	2 00
S. Blamer & Son	Johnstown, O.	Best Flock	10 00
R. D. McGonigle & Sons	Ashley, O.	2d Best	5 00
S. Blamer & Son	Johnstown, O.	Best Get of Sire	10 00

MERINOS—CLASS B.

Name of Owner.	Postoffice.	Awards.	Amount.
A. T. Gamber	Wakeman, O.	Best Ram 2 Years or Over—Monarch, 945	$10 00
S. Blamer & Son	Johnstown, O.	2d Best	5 00
S. Blamer & Son	Johnstown, O.	3d Best	3 00
A. T. Gamber	Wakeman, O.	Best Ram 1 Year and Under 2—Stoga	10 00
A. H. Dean & Son	West Mansfield, O.	2d Best	5 00
S. Blamer & Son	Johnstown, O.	3d Best	3 00
A. H. Dean & Son	West Mansfield, O.	Best Ram Under 1 Year	8 00
C. L. Freed	Lancaster, O.	2d Best	4 00
S. Blamer & Son	Johnstown, O.	3d Best	2 00
R. D. McGonigle & Sons	Ashley, O.	Best Ewe 2 Years or Over	10 00
S. Blamer & Son	Johnstown, O.	2d Best	5 00
C. H. Bell	Ashley, O.	3d Best	3 00
S. Blamer & Son	Johnstown, O.	Best Ewe 1 Year and Under 2	10 00
A. H. Dean & Son	West Mansfield, O.	2d Best	5 00
C. L. Freed	Lancaster, O.	3d Best	3 00
A. H. Dean & Son	West Mansfield, O.	Best Ewe Under 1 Year	8 00
A. T. Gamber	Wakeman, O.	2d Best	4 00
A. H. Dean & Son	West Mansfield, O.	3d Best	2 00
S. Blamer & Son	Johnstown, O.	Best Flock	10 00
C. H. Bell	Ashley, O.	2d Best	5 00
A. H. Dean	West Mansfield, O.	Best Get of Sire	10 00
S. Blamer & Son	Johnstown, O.	2d Best	5 00

DELAINE MERINOS.

Name of Owner.	Postoffice.	Awards.	Amount.
A. T. Gamber	Wakeman, O.	Best Ram 2 Years or Over—Ringleader	$10 00
A. H. Dean & Son	West Mansfield, O.	2d Best	5 00
S. Blamer & Son	Johnstown, O.	3d Best	3 00
A. T. Gamber	Wakeman, O.	Best Ram 1 Year and Under 2—Yearling	10 00
A. T. Gamber	Wakeman, O.	2d Best	5 00
Alvin Crittenden	New London, O	3d Best ... Togo	3 00
S. Blamer & Son	Johnstown, O.	Best Ram Under 1 Year	8 00
A. T. Gamber	Wakeman, O.	2d Best	4 00
S. Blamer & Son	Johnstown, O.	3d Best	2 00

DELAINE MERINOS—Concluded.

Name of Owner.	Postoffice.	Awards.	Amount.
Alvin Crittenden	New London, O	Best Ewe 2 Years or Over—Bec	$10 00
Wilson Bros	Fredericktown, O	2d Best	5 00
S. Blamer & Son	Johnstown, O	3d Best	3 00
A. T. Gamber	Wakeman, O	Best Ewe 1 Year and Under 2	10 00
S. Blamer & Son	Johnstown, O	2d Best	5 00
S. Blamer & Son	Johnstown, O	3d Best	3 00
Alvin Crittenden	New London, O	Best Ewe Under 1 Year	8 00
A. T. Gamber	Wakeman, O	2d Best	4 00
S. Blamer & Son	Johnstown, O	3d Best	2 00
A. T. Gamber	Wakeman, O	Best Flock	10 00
S. Blamer & Son	Johnstown, O	2d Best	5 00
S. Blamer & Son	Johnstown, O	Best Get of Sire	10 00
A. T. Gamber	Wakeman, O	2d Best	5 00

FRENCH MERINOS RAMBOUILLET.

Name of Owner.	Postoffice.	Awards.	Amount.
W. L. White	Johnstown, O	Best Ram 2 Years or Over	$10 00
Max Chapman	Marysville, O	2d Best. Monarch, 24336	5 00
H. K. Lee	New Guilford, O	3d Best. M. & Co., No. 1103–27667	3 00
Geo. Truesdell	Dear Park, Md	Best Ram 1 Year and Under 2—G. T., 190	10 00
Max Chapman	Marysville, O	2d Best. Poland, 30415	5 00
H. K. Lee	New Guilford, O	3d Best. H. K. Lee, No. 16–31665	3 00
Max Chapman	Marysville, O	Best Ram Under 1 Year—Dandy Dick	5 00
Geo. Truesdell	Dear Park, Md	2d Best. G. T., 251	3 00
Geo. Truesdell	Dear Park, Md	3d Best. G. T., 257	2 00
Geo. Truesdell	Dear Park, Md	Best Ewe 2 Years or Over—G. T., 96	10 00
Max Chapman	Marysville, O	2d Best. Amazon, 23896	5 00
Max Chapman	Marysville, O	3d Best. Bernita, 26226	3 00
Max Chapman	Marysville, O	Best Ewe 1 Year and Under 2—Grace, 30781	10 00
Geo. Truesdell	Dear Park, Md	2d Best. G. T., 186	5 00
Geo Truesdell	Dear Park, Md	3d Best. G. T., 194	3 00
H. K. Lee	New Guilford, O	Best Ewe Under 1 Year—M. & Co., No. 1203–32866	5 00
Max Chapman	Marysville, O	2d Best	3 00
Geo. Truesdell	Dear Park, Md.	3d Best. G. T., 260	2 00
Geo. Truesdell	Dear Park, Md	Best Flock	10 00
Max Chapman	Marysville, O	2d Best	5 00
Max Chapman	Marysville, O	Best Get of Sire	10 00
Geo. Truesdell	Dear Park, Md	2d Best	5 00

COTSWOLDS.

Name of Owner.	Postoffice.	Awards.	Amount.
D. B. Watt & Son	Xenia, O	Best Ram 2 Years or Over	$10 00
D. B. Watt & Son	Xenia, O	2d Best	5 00
Wilson Bros	Muncie, Ind	3d Best	3 00
D. B. Watt & Son	Xenia, O., R. R. 2	Best Ram 1 Year and Under 2	10 00
Wilson Bros	Muncie, Ind., Box 212	2d Best	5 00
Wilson Bros	Muncie, Ind., Box 212	3d Best	3 00
Wilson Bros	Muncie, Ind., Box 212	Best Ram Under 1 Year	5 00
D. B. Watt & Son	Xenia, O., R. R. 2	2d Best	3 00
D. B. Watt & Son	Xenia, O., R. R. 2	3d Best	2 00
C. Schwert & Sons	Galion, O., R. R. 1	Best Ewe 2 Years or Over—Schwarts 13—29195	10 00
Wilson Bros	Muncie, Ind., Box 212	2d Best	5 00
D. B. Watt & Son	Xenia, O.	3d Best	3 00
Wilson, Bros	Muncie, Ind	Best Ewe 1 Year and Under 2	10 00
D. B. Watt & Son	Xenia, O	2d Best	5 00
D. B. Watt & Son	Xenia, O	3d Best	3 00
Wilson Bros	Muncie, Ind	Best Ewe Under 1 Year	5 00
D. B. Watt & Son	Xenia, O	2d Best	3 00
D. B. Watt & Son	Xenia, O	3d Best	2 00

COTSWALDS—Concluded.

Name of Owner.	Postoffice.	Awards.	Amount.
Wilson Bros	Muncie, Ind	Best Flock	$10 00
D. B. Watt & Son	Xenia, O	2d Best	5 00
Wilson Bros	Muncie, Ind	Best Get of Sire	10 00
D. B. Watt & Son	Xenia, O	2d Best	5 00

OXFORD DOWNS.

Name of Owner.	Postoffice.	Awards.	Amount.
Wilson Bros	Muncie, Ind	Best Ram 2 Years or Over	$10 0
Geo. W. Heskett, Jr	Fulton, O	2d Best	5 00
Jno. C. Williamson	Xenia, O	3d Best	3 00
Jno. C. Williamson	Xenia, O	Best Ram 1 Year and Under 2	10 00
Geo. W. Heskett, Jr	Fulton, O	2d Best	5 00
Geo. W. Heskett, Jr	Fulton, O	3d Best	3 00
Geo. W. Heskett, Jr	Fulton, O	Best Ram Under 1 Year	5 00
Geo. W. Heskett, Jr	Fulton, O	2d Best	3 00
Jno. C. Williamson	Xenia, O	3d Best	2 00
Jno. C. Williamson	Xenia, O	Best Ewe 2 Years or Over	10 00
Geo. W. Heskett, Jr	Fulton, O	2d Best	5 00
Jno. C. Williamson	Xenia, O	3d Best	3 00
Jno. C. Williamson	Xenia, O	Best Ewe 1 Year and Under 2	10 00
Jno. C. Williamson	Xenia, O	2d Best	5 00
Geo. W. Heskett, Jr	Fulton, O	3d Best	3 00
Geo. W. Heskett, Jr	Fulton, O	Best Ewe Under 1 Year	5 00
Jno. C. Williamson	Xenia, O	2d Best	3 00
Geo. W. Heskett, Jr	Fulton, O	3d Best	2 00
Jno. C. Williamson	Xenia, O	Best Flock	10 00
Geo. W. Heskett, Jr	Fulton, O	2d Best	5 00
Geo. W. Heskett, Jr	Fulton, O	Best Get of Sire	10 00
Jno. C. Williamson	Xenia, O	2d Best	5 00

SHROPSHIRE DOWNS.

Name of Owner.	Postoffice.	Awards.	Amount.
Henry L. Wardwell	Springfield Center, Otsego Co., N. Y.	Best Ram 2 Years or Over—Montford Hero, 522–204711	$10 00
Chas. H. Hutchison	White Pigeon, Mich	2d Best	5 00
C. S. Lyon	Harrodsburg, Ky	3d Best	3 00
Henry L. Wardwell	SpringfieldCen.,N.Y	Best Ram 1 Year and Under 2—Wardwell's Governor, 303–204556	10 00
Henry L. Wardwell	SpringfieldCen.,N.Y	2d Best........Glory, 353–207516	5 00
Chas. H. Hutchison	White Pigeon, Mich	3d Best	3 00
Henry L. Wardwell	SpringfieldCen.,N.Y	Best Ram Under 1 Year—Wardwell's Halt Mark, 397–219699	5 00
J. G. Hanmer	Brantford, Ont., Can	2d Best	3 00
Chas. H. Hutchison	White Pigeon, Mich	3d Best	2 00
Chas. H. Hutchison	White Pigeon, Mich	Best Ewe 2 Years or Over	10 00
Henry L. Wardwell	SpringfieldCen.,N.Y	2d Best........Wardwell's H. L. W., 523–204701	5 00
Henry L. Wardwell	SpringfieldCen.,N.Y	3d Best........Wardwell's H. L. W., 506–204681	3 00
Henry L. Wardwell	SpringfieldCen.,N.Y	Best Ewe 1 Year and Under 2—Wardwell's H. L. W., 320–207514	10 00
Henry L. Wardwell	SpringfieldCen.,N.Y	2d Best........Wardwell's Davison, 1719–206101	5 00
Henry L. Wardwell	SpringfieldCen.,N.Y	3d Best........Wardwell's H. L. W., 305–204549	3 00
Henry L. Wardwell	SpringfieldCen.,N.Y	Best Ewe Under 1 Year—Wardwell's H. L. W., 385–218705	5 00
Henry L. Wardwell	SpringfieldCen.,N.Y	2d Best........Wardwell's H. L. W., 398–218700	3 00
Chas. H. Hutchison	White Pigeon, Mich	3d Best	2 00
Henry L. Wardwell	SpringfieldCen.,N.Y	Best Flock	10 00
Chas. H. Hutchison	White Pigeon, Mich	2d Best	5 00
Henry L. Wardwell	SpringfieldCen.,N.Y	Best Get of Sire	10 00
J. G. Hanmer	Brantford, Ont., Can	2d Best	5 00

HAMPSHIRE DOWNS.

Name of Owner.	Postoffice.	Awards.	Amount.
P. W. Artz	Osborn, O	Best Ram 2 Years or Over	$10 00
P. W. Artz	Osborn, O	2d Best	5 00
Geo. W. Grim	Fremont, Ind	3d Best 4124	3 00
P. W. Artz	Osborn, O	Best Ram 1 Year and Under 2	10 00
P. W. Artz	Osborn, O	2d Best	5 00
W. J. Cherry	Xenia, O	3d Best	3 00
P. W. Artz	Osborn, O	Best Ram Under 1 Year	5 00
P. W. Artz	Osborn, O	2d Best	3 00
Geo. W. Grim	Fremont, Ind	3d Best	2 00
W. J. Cherry	Xenia, O	Best Ewe 2 Years or Over	10 00
Geo. W. Grim	Fremont, Ind	2d Best 8793	5 00
P. W. Artz	Osborn, O	3d Best	3 00
P. W. Artz	Osborn, O	Best Ewe 1 Year and Under 2	10 00
P. W. Artz	Osborn, O	2d Best	5 00
Geo. W. Grim	Fremont, Ind	3d Best	3 00
P. W. Artz	Osborn, O	Best Ewe Under 1 Year	5 00
P. W. Artz	Osborn, O	2d Best	3 00
Geo. W. Grim	Fremont, Ind	3d Best	2 00
P. W. Artz	Osborn, O	Best Flock	10 00
Geo. W. Grim	Fremont, Ind	2d Best	5 00
P. W. Artz	Osborn, O	Best Get of Sire	10 00
Geo. W. Grim	Fremont, Ind	2d Best	5 00

SOUTHDOWNS.

Name of Owner.	Postoffice.	Awards.	Amount.
Wilson Bros	Muncie, Ind., Box 212	Best Ram 2 Years or Over	$10 00
W. H. Compton & Son	Monroe, O	2d Best	5 00
Alvah Freed	Lancaster, O	3d Best	3 00
Wilson Bros	Muncie, Ind., Box 212	Best Ram 1 Year and Under 2	10 00
C. S. Lyon	Harrodsburg, Ky	2d Best....Hilldale Prince, 18482	5 00
W. H. Compton & Son	Monroe, O	3d Best	3 00
Wilson Bros	Muncie, Ind., Box 212	Best Ram Under 1 Year	5 00
C. S. Lyon	Harrodsburg, Ky	2d Best....Hilldale Victor No. 58	3 00
W. H. Compton & Son	Monroe, O	3d Best	2 00
Wilson Bros	Muncie, Ind., Box 212	Best Ewe 2 Years or Over	10 00
W. H. Compton & Son	Monroe, O	2d Best	5 00
W. H. Compton & Son	Monroe, O	3d Best	3 00
Wilson Bros	Muncie, Ind., Box 212	Best Ewe 1 Year and Under 2	10 00
Alvah Freed	Lancaster, O	2d Best	5 00
C. S. Lyon	Harrodsburg, Ky	3d Best	3 00
W. H. Compton & Son	Monroe, O	Best Ewe Under 1 Year	5 00
Wilson Bros	Muncie, Ind., Box 212	2d Best	3 00
W. H. Compton & Son	Monroe, O	3d Best	2 00
Wilson Bros	Muncie, Ind., Box 212	Best Flock	10 00
W. H. Compton & Son	Monroe, O	2d Best	5 00
W. H. Compton & Son	Monroe, O	Best Get of Sire	10 00
C. S. Lyon	Harrodsburg, Ky	2d Best	5 00

LINCOLNS AND LEICESTERS.

Name of Owner.	Postoffice.	Awards.	Amount.
J. R. Bickett	Xenia, O	Best Ram 2 Years or Over	$10 00
H. M. Brown	Hillsboro, O	2d Best	5 00
H. M. Brown	Hillsboro, O	3d Best	3 00
J. R. Bickett	Xenia, O	Best Ram 1 Year and Under 2	10 00
H. M. Brown	Hillsboro, O	2d Best	5 00
H. M. Brown	Hillsboro, O	3d Best	3 00
J. R. Bickett	Xenia, O	Best Ram Under 1 Year	5 00
J. R. Bickett	Xenia, O	Best Ewe 2 Years or Over	10 00
H. M. Brown	Hillsboro, O	2d Best	5 00
J. R. Bickett	Xenia, O	3d Best	3 00
J. R. Bickett	Xenia, O	Best Ewe 1 Year and Under 2	10 00
H. M. Brown	Hillsboro, O	2d Best	5 00
J. R. Bickett	Xenia, O	3d Best	3 00
J. R. Bickett	Xenia, O	Best Ewe Under 1 Year	5 00
J. R. Bickett	Xenia, O	2d Best	3 00
H. M. Brown	Hillsboro, O	3d Best	2 00
J. R. Bickett	Xenia, O	Best Flock	10 00
H. M. Brown	Hillsboro, O	2d Best	5 00
J. R. Bickett	Xenia, O	Best Get of Sire	10 00
H. M. Brown	Hillsboro, O	2d Best	5 00

DORSETS.

Name of Owner.	Postoffice.	Awards.	Amount.
J. B. Henderson	Burgettstown, Pa.	Best Ram 2 Years or Over—Valley View Model, 3898	$10 00
J. B. Henderson	Burgettstown, Pa.	Best Ram 1 Year and Under 2—Valley View Frank, 3907	10 00
J. B. Henderson	Burgettstown, Pa.	Best Ram Under 1 Year	5 00
J. B. Henderson	Burgettstown, Pa.	Best Ewe 2 Years or Over—Valley View 5, 3917	10 00
J. B. Henderson	Burgettstown, Pa.	Best Ewe 1 Year and Under 2—Valley View 13, 3911	10 00
J. B. Henderson	Burgettstown, Pa.	Best Ewe Under 1 Year	5 00
J. B. Henderson	Burgettstown, Pa.	Best Flock	10 00
J. B. Henderson	Burgettstown, Pa.	Best Get of Sire	10 00

CHEVIOTS.

Name of Owner.	Postoffice.	Awards.	Amount.
G. W. Parnell	Wingate, Ind.	Best Ram 2 Years or Over—John L, 3397	$10 00
Ed. S. Foust	Xenia, O., R. R. 2	2d Best	5 00
Wayne C. Postle	Camp Chase, O.	3d Best	3 00
G. W. Parnell	Wingate, Ind.	Best Ram 1 Year and Under 2—4183	10 00
G W. Parnell	Wingate, Ind.	2d Best 4176	5 00
Ed. S. Foust	Xenia, O.	3d Best	3 00
G. W. Parnell	Wingate, Ind.	Best Ram Under 1 Year	5 00
G. W. Parnell	Wingate, Ind.	2d Best	3 00
Ed. S. Foust	Xenia, O., R. R. 2	3d Best	2 00
G. W. Parnell	Wingate, Ind.	Best Ewe 2 Years or Over—3433	10 00
G. W. Parnell	Wingate, Ind.	2d Best 3898	5 00
G. W. Parnell	Wingate, Ind.	3d Best 3773	3 00
G. W. Parnell	Wingate, Ind.	Best Ewe 1 Year and Under 2—4181	10 00
G. W. Parnell	Wingate, Ind.	2d Best 4055	5 00
G. W. Parnell	Wingate, Ind.	3d Best 4179	3 00
G. W. Parnell	Wingate, Ind	Best Ewe Under 1 Year	5 00
Ed. S. Foust	Xenia, O., R. R. 2	2d Best	3 00
Ed. S. Foust	Xenia, O., R. R. 2	3d Best	2 00
G. W. Parnell	Wingate, Ind.	Best Flock	10 00
Ed. S. Foust	Xenia, O., R. R. 2	2d Best	5 00
G. W. Parnell	Wingate, Ind.	Best Get of Sire	10 00
Ed. S. Foust	Xenia, O., R. R. 2	2d Best	5 00

FAT SHEEP.

Name of Owner.	Postoffice.	Awards.	Amount.
C. S. Lyon	Harrodsburg, Ky.	Best Wether 1 Year and Under 2	$8 00
J. C. Price	Georgesville, O.	2d Best	5 00
T. D. Postle	Camp Chase, O.	3d Best	3 00
C. S. Lyon	Harrodsburg, Ky.	Best Wether Lamb	6 00
C. S. Lyon	Harrodsburg, Ky.	2d Best	4 00
C. S. Lyon	Harrodsburg, Ky.	3d Best	2 00
C. S. Lyon	Harrodsburg, Ky.	Best Pen of 3 Wethers Any Age	10 00
J. C. Price	Georgesville, O.	2d Best	5 00
C. S. Lyon	Harrodsburg, Ky.	Best Pen of 5 Wether Lambs	10 00
J. C. Price	Georgesville, O.	2d Best	5 00

FOURTH DEPARTMENT—SWINE.

A. P. SANDLES, Member in Charge.

BERKSHIRES.

Name of Owner.	Postoffice.	Awards.	Amount.
Hood Farm	Lowell, Mass	Best Boar 2 Years or Over	$15 00
Hood Farm	Lowell, Mass	2d Best	8 00
I. N. Barker & Son	Thornton, Ind	3d Best	5 00
Hood Farm	Lowell, Mass	Best Boar 1 Year and Under 2	12 00
I. Everson & Son	Wellington, O	2d Best	6 00
Hood Farm	Lowell, Mass	3d Best	4 00
J. L. Axline	Pataskala, O	Best Boar 6 Months and Under 1 Year	10 00
I. Everson & Son	Wellington, O	2d Best	5 00
I. N. Barker & Son	Thornton, Ind	3d Best	3 00
I. N. Barker & Son	Thornton, Ind	Best Boar Under 6 Months	8 00
I. N. Barker & Son	Thornton, Ind	2d Best	4 00
Hood Farm	Lowell, Mass	3d Best	2 00
Hood Farm	Lowell, Mass	Best Sow 2 Years or Over	15 00
Hood Farm	Lowell, Mass	2d Best	8 00
Etzler & Moses	Convoy, O	3d Best	5 00
Hood Farm	Lowell, Mass	Best Sow 1 Year and Under 2	12 00
I. N. Barker & Son	Thornton, Ind	2d Best	6 00
I. N. Barker & Son	Thornton, Ind	3d Best	4 00
Etzler & Moses	Convoy, O	Best Sow 6 Months and Under 1 Year	10 00
I. N. Barker & Son	Thornton, Ind	2d Best	5 00
I. N. Barker & Son	Thornton, Ind	3d Best	3 00
I. N. Barker & Son	Thornton, Ind	Best Sow Under 6 Months	8 00
I. N. Barker & Son	Thornton, Ind	2d Best	4 00
I. N. Barker & Son	Thornton, Ind	3d Best	2 00
		(Breeders' Rings.)	
Hood Farm	Lowell, Mass	Best 4 Swine, the Get of 1 Boar	$15 00
I. N. Barker & Son	Thornton, Ind	2d Best	8 00
I. N. Barker & Son	Thornton, Ind	Best 4 Pigs, the Produce of 1 Sow	15 00
Hood Farm	Lowell, Mass	2d Best	8 00
Hood Farm	Lowell, Mass	Best Boar and 3 Sows Over 1 Year	15 00
I. Everson & Son	Wellington, O	2d Best	8 00
I. N. Barker & Son	Thornton, Ind	Best Boar and 3 Sows Under 1 Year	15 00
I. N. Barker & Son	Thornton, Ind	2d Best	8 00

POLAND CHINAS.

Name of Owner.	Postoffice.	Awards.	Amount.
F. B. McNeal	Troy, O	Best Boar 2 Years or Over	$15 00
J. M. Linsom	South Solon O	2d Best	8 00
S. E. Shellenberger Co	Camden, O	3d Best	5 00
A.H.Mather & Ed.Klever	Wilmington, O	Best Boar 1 Year and Under 2	12 00
Shellenberger & Keller	Camden, O	2d Best	6 00
Geo. Wolverton	Middletown, O	3d Best	4 00
Probasco & Welsh	Wilmington, O	Best Boar 6 Months and Under 1 Year	10 00
Schlenker Bros	Wapakoneta, O	2d Best	5 00
Ed. Klever	Bloomingburg, O	3d Best	3 00
Thos. Hunter	Morrow, O	Best Boar Under 6 Months	8 00
C. W. Haines & Son	Centerville, O	2d Best	4 00
C. W. Haines & Son	Centerville, O	3d Best	2 00
J. M. Linsom	South Solon, O	Best Sow 2 Years or Over	15 00
F. B. McNeal	Troy, O	2d Best	8 00
R. K. Beam & Son	Ansonia, O	3d Best	5 00
Chas. E. Keller	Newark, O	Best Sow 1 Year and Under 2	12 00
Ed. Klever	Bloomingburg, O	2d Best	6 00
Chas. E. Keller	Newark, O	3d Best	4 00
Ed. Klever	Bloomingburg, O	Best Sow 6 Months and Under 1 Year	10 00
Ed. Klever	Bloomingburg, O	2d Best	5 00
Ed. Klever	Bloomingburg, O	3d Best	3 00

POLAND CHINAS—Concluded.

Name of Owner.	Postoffice.	Awards.	Amount.
M. C. Brown	Martinsville, O	Best Sow Under 6 Months	$8 00
M. C. Brown	Martinsville, O	2d Best	4 00
M. C. Brown	Martinsville, O	3d Best	2 00
		(Breeders' Rings.)	
Chas. E. Keller	Newark, O	Best 4 Swine, the Get of 1 Boar	15 00
Ed. Klever	Bloomingburg, O	2d Best	8 00
M. C. Brown	Martinsville, O	Best 4 Pigs Under 6 Months, the Produce of 1 Sow	15 00
Thos. Hunter	Morrow, O	2d Best	8 00
S. E. Shellenberger Co	Camden, O	Best Boar and 3 Sows Over 1 Year	15 00
J. M. Linsom	South Solon, O	2d Best	8 00
Ed. Klever	Bloomingburg, O	Best Boar and 3 Sows Under 1 Year	15 00
M. C. Brown	Martinsville, O	2d Best	8 00

CHESTER WHITES.

Name of Owner.	Postoffice.	Awards.	Amount.
W. J. Cherry	Xenia, O	Best Boar 2 Years or Over	$15 00
Wm. T. Dever	Lucasville, O	2d Best	8 00
J. H. Kroh	Hillsdale, Mich	3d Best	5 00
J.W.L.Motherspaw & Son	Newark, O	Best Boar 1 Year and Under 2	12 00
W. J. Cherry	Xenia, O	2d Best	6 00
C. Hintz & Son	Fremont, O	3d Best	4 00
J. L. Beringer	Marion, O	Best Boar 6 Months and Under 1 Year	10 00
Wm. T. Dever	Lucasville, O	2d Best	5 00
W. J. Cherry	Xenia, O	3d Best	3 00
J.W.L.Motherspaw & Son	Newark, O	Best Boar Under 6 Months	8 00
W. J. Cherry	Xenia, O	2d Best	4 00
L. H. Martin	Alexandria, O	3d Best	2 00
W. J. Cherry	Xenia, O	Best Sow 2 Years or Over	15 00
J. H. Kroh	Hillsdale, Mich	2d Best	8 00
C. Hintz & Son	Fremont, O	3d Best	5 00
J W.L.Motherspaw & Son	Newark, O	Best Sow 1 Year and Under 2	12 00
W. J. Cherry	Xenia, O	2d Best	6 00
C. Hintz & Son	Fremont, O	3d Best	4 00
J L. Beringer	Marion, O	Best Sow 6 months and Under 1 Year	10 00
Wm. T. Dever	Lucasville, O	2d Best	5 00
Wm. T. Dever	Lucasville, O	3d Best	3 00
J.W.L.Motherspaw & Son	Newark, O	Best Sow Under 6 Months	8 00
J.W.L.Motherspaw & Son	Newark, O	2d Best	4 00
W. J. Cherry	Xenia, O	3d Best	2 00
		(Breeders' Rings.)	
J. L Beringer	Marion, O	Best 4 Swine, the Get of 1 Boar	15 00
Wm.T. Dever	Lucasville, O	2d Best	8 00
J.W L.Motherspaw & Son	Newark, O	Best 4 Pigs Under 6 Months, the Produce of 1 Sow	15 00
W. J. Cherry	Xenia, O	2d Best	8 00
J. H. Kroh	Hillsdale, Mich	Best Boar and 3 Sows Over 1 Year	15 00
Wm. T. Dever	Lucasville, O	2d Best	8 00
J. L. Beringer	Marion, O	Best Boar and 3 Sows Under 1 Year	15 00
Wm. T. Dever	Lucasville, O	2d Best	8 00

DUROC JERSEYS.

Name of Owner.	Postoffice.	Awards.	Amount.
J. D. Nidlinger	Decatur, Ind	Best Boar 2 Years or Over	$15 00
Watt & Foust	Cedarville and Xenia, O	2d Best	8 00
A. E. Foster	New Salem, O	3d Best	5 00
Watt & Foust	Cedarville and Xenia O	Best Boar 1 Year and Under 2	12 00
J. D. Nidlinger	Decatur, Ind	2d Best	6 00
H. C. Thomson & Son	Fremont, O	3d Best	4 00

DUROC JERSEYS—Concluded.

Name of Owner.	Postoffice.	Awards.	Amount.
J. D. Nidlinger	Decatur, Ind	Best Boar 6 Months and Under 1 Year	$10 00
A. J. Brock	South Solon, O	2d Best	5 00
R. K Beam & Son	Ansonia, O	3d Best	3 00
Watt & Foust	Cedarville and Xenia, O	Best Boar Under 6 Months	8 00
Watt & Foust	Cedarville and Xenia, O	2d Best	4 00
J. D. Nidlinger	Decatur, Ind	3d Best	2 00
Watt & Foust	Cedarville and Xenia, O	Best Sow 2 Years or Over	15 00
J. D. Nidlinger	Decatur, Ind	2d Best	8 00
Boyd & King	Hillsboro, O	3d Best	5 00
J. D. Nidlinger	Decatur, Ind	Best Sow 1 Year and Under 2	12 00
Watt & Foust	Cedarville and Xenia, O	2d Best	6 00
Watt & Foust	Cedarville and Xenia, O	3d Best	4 00
J. D Nidlinger	Decatur, Ind	Best Sow 6 Months and Under 1 Year	10 00
A. J. Brock	South Solon, O	2d Best	5 00
Watt & Foust	Cedarville and Xenia, O	3d Best	3 00
J. D. Nidlinger	Decatur Ind	Best Sow Under 6 Months	8 00
Watt & Foust	Cedarville and Xenia, O	2d Best	4 00
Boyd & King	Hillsboro, O	3d Best	2 00
		(Breeders' Rings.)	
Watt & Foust	Cedarville and Xenia, O	Best 4 Swine, the Get of 1 Boar	15 00
J. D. Nidlinger	Decatur, Ind	2d Best	8 00
J. D. Nidlinger	Decatur, Ind	Best 4 Pigs Under 6 Months, the Produce of 1 Sow	15 00
Watt & Foust	Cedarville and Xenia, O	2d Best	8 00
Watt & Foust	Cedarville and Xenia, O	Best Boar and 3 Sows Over 1 Year	15 00
J. D. Nidlinger	Decatur, Ind	2d Best	8 00
J. D. Nidlinger	Decatur, Ind	Best Boar and 3 Sows Under 1 Year	15 00
Watt & Foust	Cedarville and Xenia, O	2d Best	8 00

LARGE YORKSHIRES AND TAMROCKS.

Name of Owner.	Postoffice.	Awards.	Amount.
C. Hintz & Son	Fremont, O	Best Boar 2 Years or Over	$10 00
C. Hintz & Son	Fremont, O	Best Boar 1 Year and Under 2	10 00
C. Hintz & Son	Fremont, O	Best Boar 6 Months and Under 1 Year	8 00
C. Hintz & Son	Fremont, O	Best Boar Under 6 Months	5 00
C. Hintz & Son	Fremont, O	Best Sow 2 Years or Over	10 00
C. Hintz & Son	Fremont, O	Best Sow 1 Year and Under 2	10 00
C. Hintz & Son	Fremont, O	Best Sow 6 Months and Under 1 Year.	8 00
C. Hintz & Son	Fremont, O	Best Sow Under 6 Months	5 00
		(Breeders' Rings.)	
C. Hintz & Son	Fremont, O	Best 4 Swine, the Get of 1 Boar	12 00
C. Hintz & Son	Fremont, O	Best 4 Pigs under 6 Months, the Produce of 1 Sow	12 00
C. Hintz & Son	Fremont, O	Best Boar and 3 Sows Over 1 Year	12 00
C. Hintz & Son	Fremont, O	Best Boar and 3 Sows Under 1 Year	12 00

SUFFOLK, SMALL YORKSHIRE AND ESSEX BREEDS.

Name of Owner.	Postoffice.	Awards.	Amount.
George Inechen	Bryant, Ind	Best Boar 2 Years or Over	$10 00
J. L. McMurray	Montgomery, Mich.	2d Best	5 00
Geo. Inechen	Bryant, Ind	Best Boar 1 Year and Under 2	10 00
J. L. McMurray	Montgomery, Mich.	2d Best	5 00
J. L. McMurray	Montgomery, Mich.	Best Boar 6 Months and Under 1 Year	8 00
Geo. Inechen	Bryant, Ind	2d Best	4 00

SUFFOLK, SMALL YORKSHIRE AND ESSEX BREEDS—Concluded.

Name of Owner.	Postoffice.	Awards.	Amount.
J. L. McMurray	Montgomery, Mich.	Best Boar Under 6 Months	$5 00
Geo. Inechen	Bryant, Ind	2d Best	3 00
J. L. McMurray	Montgomery, Mich.	Best Sow 2 Years or Over	10 00
Geo. Inechen	Bryant, Ind	2d Best	5 00
Geo. Inechen	Bryant, Ind	Best Sow 1 Year and Under 2	10 00
J. L. McMurray	Montgomery, Mich.	2d Best	5 00
J. L. McMurray	Montgomery, Mich.	Best Sow 6 Months and Under 1 Year	8 00
J. L. McMurray	Montgomery, Mich.	2d Best	4 00
J. L. McMurray	Montgomery, Mich.	Best Sow Under 6 Months	5 00
Geo. Inechen	Bryant, Ind	2d Best	3 00
		(Breeders' Rings.)	
J. L. McMurray	Montgomery, Mich.	Best 4 Swine, the Get of 1 Boar	12 00
J. L. McMurray	Montgomery, Mich.	2d Best	6 00
J. L. McMurray	Montgomery, Mich.	Best 4 Pigs Under 6 Months, the Produce of 1 Sow	12 00
Geo. Inechen	Bryant, Ind	2d Best	6 00
Geo. Inechen	Bryant, Ind	Best Boar and 3 Sows Over 1 Year	12 00
J. L. McMurray	Montgomery, Mich.	2d Best	6 00
J. L. McMurray	Montgomery, Mich.	Best Boar and 3 Sows Under 1 Year	12 00
Geo. Inechen	Bryant, Ind	2d Best	6 00

CHESHIRES AND VICTORIAS

Name of Owner	Postoffice	Awards.	Amount.
Geo. Inechen	Bryant, Ind	Best Boar 2 Years or Over	$10 00
Geo. Inechen	Bryant, Ind	Best Boar 1 Year and Under 2	10 00
Geo. Inechen	Bryant, Ind	Best Boar 6 Months and Under 1 Year	8 00
Geo. Inechen	Bryant, Ind	Best Boar Under 6 Months	5 00
Geo. Inechen	Bryant, Ind	Best Sow 2 Years or Over	10 00
Geo. Inechen	Bryant, Ind	Best Sow 1 Year and Under 2	10 00
Geo. Inechen	Bryant, Ind	Best Sow 6 Months and Under 1 Year	8 00
Geo. Inechen	Bryant, Ind	Best Sow Under 6 Months	5 00
		(Breeders' Rings.)	
Geo. Inechen	Bryant, Ind	Best 4 Swine, the Get of 1 Boar	12 00
Geo. Inechen	Bryant, Ind	Best 4 Pigs Under 6 Months, the Produce of 1 Sow	12 00
Geo. Inechen	Bryant, Ind	Best Boar and 3 Sows Over 1 Year	12 00
Geo. Inechen	Bryant, Ind	Best Boar and 3 Sows Under 1 Year	12 00

FIFTH DEPARTMENT—POULTRY.

A. P. SANDLES, Member in Charge.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
BARRED PLYMOUTH ROCK.			
Oscar Miles	53 Board of Trade,Columbus,O	Best Cock	$2 00
Eugene Sites	Elyria, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Cockerel	2 00
W. A. Mason	Ashland, O	2d Best	1 00
L. T. Shaner	Circleville, O	Best Hen	2 00
Eugene Sites	Elyria, O	2d Best	1 00
W. A. Mason	Ashland, O	Best Pullet	2 00
Joseph Allemang	Bloomingburg, O	2d Best	1 00
Eugene Sites	Elyria, O	Best Breeding Pen	3 00
Oscar Miles	53 Board of Trade, Columbus, O.	2d Best	2 00
WHITE PLYMOUTH ROCK.			
J. I. Myers	Marysville, O	Best Cock	2 00
Eugene Sites	Elyria, O	2d Best	1 00
Huckeriede Bros	New Bremen, O	Best Cockerel	2 00
C. W. Kent	Newark, O., R. R. 5	2d Best	1 00
Huckeriede Bros	New Bremen, O	Best Hen	2 00
W. T. Elliott	Bloomingburg, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
C. W. Kent	Newark, O., R. R. 5	2d Best	1 00
Huckeriede Bros	New Bremen, O	Best Breeding Pen	3 00
C. W. Kent	Newark, O., R. R. 5	2d Best	2 00
BUFF PLYMOUTH ROCK.			
J. I. Myers	Marysville, O	Best Cock	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
Eugene Sites	Elyria, O	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
Eugene Sites	Elyria, O	2d Best	1 00
Chas. McClave	New London, O	Best Breeding Pen	3 00
Eugene Sites	Elyria, O	2d Best	2 00
BUFF ORPINGTON.			
C. E. & W. Smith	Ashley, O	Best Cock	2 00
H. M. Close	Newark, O	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
H. M. Close	Newark, O	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
Chas. McClave	New London, O	Best Breeding Pen	3 00
C. E. & W. Smith	Ashley, O	2d Best	2 00
SILVER WYANDOTTE.			
Armbrust Bros	Armbrust, Pa	Best Cock	2 00
W. C. Brookover	Chandlersville, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Cockerel	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Hen	2 00
W. C. Brookover	Chandlersville, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Pullet	2 00
Geo. Wilson	Marysville, O., R. R. 1	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Breeding Pen	3 00
Geo. Wilson	Marysville, O., R. R. 1	2d Best	2 00

POULTRY—Continued.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
	GOLDEN WYANDOTTE.		
Jas. A. Tucker	Concord, Mich.	Best Cock	$2 00
John Luther	Oval City, O.	2d Best	1 00
C. E. & W. Smith	Ashley, O.	Best Cockerel	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
C. E. & W. Smith	Ashley O.	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Pullet	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Breeding Pen	3 00
C. E. & W. Smith	Ashley, O.	2d Best	2 00
	WHITE WYANDOTTE.		
Chas. McClave	New London, O	Best Cock	2 00
Chas. McClave	New London, O	2d Best	1 00
C. L Helsel	Columbus, O., R. R. Sta. C.	Best Cockerel	2 00
A. C. Wagner	Tiffin, O.	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
G. R. Haswell	Circleville, O.	Best Pullet	2 00
Chas. McClave	New London O	2d Best	1 00
Chas. McClave	New London, O	Best Breeding Pen	3 00
Chas. McClave	New London, O	2d Best	2 00
	BLACK WYANDOTTE.		
Jas. A. Tucker	Concord, Mich	Best Cock	2 00
S. E. Wurst	Elyria, O.	2d Best	1 00
Eugene Sites	Elyria, O.	Best Cockerel	2 00
S. E. Wurst	Elyria, O.	2d Best	1 00
John Luther	Oval City, O.	Best Hen	2 00
S. E. Wurst	Elyria, O.	2d Best	1 00
Eugene Sites	Elyria, O.	Best Pullet	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Eugene Sites	Elyria, O.	Best Breeding Pen	3 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	2 00
	BUFF WYANDOTTE.		
C. A. Godfrey	Ashland, O	Best Cock	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Cockerel	2 00
C. W. Kent	Newark, O., R. R. 5	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Hen	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
C. E. & W. Smith	Ashley, O.	Best Pullet	2 00
C. A. Godfrey	Ashland, O	2d Best	1 00
Jas. A. Tucker	Concord Mich.	Best Breeding Pen	3 00
C. A. Godfrey	Ashland, O	2d Best	2 00
	PARTRIDGE WYANDOTTE.		
Chas. McClave	New London, O	Best Cock	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Eugene Sites	Elyria, O.	Best Cockerel	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Eugene Sites	Elyria, O.	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
Eugene Sites	Elyria, O.	Best Pullet	2 00
Eugene Sites	Elyria O.	2d Best	1 00
Eugene Sites	Elyria, O.	Best Breeding Pen	3 00
Eugene Sites	Elyria, O.	2d Best	2 00
	SILVER PENCILED WYANDOTTE.		
S. E. Wurst	Elyria, O.	Best Cock	2 00
Eugene Sites	Elyria, O.	2d Best	1 00
Eugene Sites	Elyria, O.	Best Cockerel	2 00
Eugene Sites	Elyria, O.	Best Hen	2 00
Eugene Sites	Elyria, O.	2d Best	1 00
Eugene Sites	Elyria, O.	Best Pullet	2 00
Eugene Sites	Elyria, O.	Best Breeding Pen	3 00

POULTRY—Continued

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.

BLACK JAVA.

H. Wilson	Springfield,O., 56W.ColumbiaSt.	Best Cock	$2 00
John Luther	Oval City, O	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
Chas. McClave	New London, O	Best Breeding Pen	3 00
Jas. A. Tucker	Concord, Mich	2d Best	2 00

BUCKEYE RED.

E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cock	2 00
E. J. Haskins	Pittsford, Mich. R. R. 31	Best Hen	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Breeding Pen	3 00

R. C. RHODE ISLAND RED.

Oscar Miles	53 Board of Trade, Columbus, O	Best Cock	2 00
Oscar Miles	53 Board of Trade, Columbus, O.	2d Best	1 00
Oscar Miles	53 Board of Trade, Columbus, O.	Best Cockerel	2 00
Oscar Miles	53 Board of Trade, Columbus, O.	2d Best	1 00
Oscar Miles	53 Board of Trade, Columbus, O.	Best Hen	2 00
Oscar Miles	53 Board of Trade, Columbus, O.	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
Chas. McClave	New London, O	2d Best	1 00
Oscar Miles	53 Board of Trade, Columbus, O.	Best Breeding Pen	3 00

LIGHT BRAHMA.

I. M. & J. W. Farber	Sandyville, O	Best Cock	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
I. N. Barker & Son	Thornton, Ind	Best Cockerel	2 00
I. N. Barker & Son	Thornton, Ind	2d Best	1 00
I. N. Barker & Son	Thornton, Ind	Best Hen	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
I. N. Barker & Son	Thornton, Ind	2d Best	1 00
I. N. Barker & Son	Thornton, Ind	Best Breeding Pen	3 00
C. E. & W. Smith	Ashley, O	2d Best	2 00

DARK BRAHMA.

H. Wilson	56 W.ColumbiaSt.,Springfield,O	Best Cock	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Cockerel	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Hen	2 00
John Luther	Oval City, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Pullet	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Breeding Pen	3 00
Jas. A. Tucker	Concord, Mich	2d Best	2 00

BUFF COCHIN.

Jas. A. Tucker	Concord, Mich	Best Cock	2 00
A. H. Kochensparger	Junction City, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Hen	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Pullet	2 00
Chas. McClave	New London, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Breeding Pen	3 00
Chas. McClave	New London, O	2d Best	2 00

POULTRY—Continued.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
PARTRIDGE COCHIN.			
Jas. A. Tucker	Concord Mich.	Best Cock	$2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cockerel	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
G. D. Corles	Atlanta, O	Best Hen	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
C. E. & W. Smith	Ashley, O.	Best Pullet	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Breeding Pen	3 00
C. E. & W. Smith	Ashley, O.	2d Best	2 00
WHITE COCHIN.			
Jas. A. Tucker	Concord, Mich	Best Cock	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Cockerel	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Hen	2 00
S. E Wurst	Elyria, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Breeding Pen	3 00
BLACK COCHIN.			
Armbrust Bros	Armbrust, Pa	Best Cock	2 00
John Luther	Oval City, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Cockerel	2 00
Jas. A. Tucker	Concord, Mich.	Best Hen	2 00
A. H. Kochensparger	Junction City, O.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Pullet	2 00
Jas. A. Tucker	Concord, Mich.	Best Breeding Pen	3 00
BLACK LANGSHAN.			
Highland Poultry Farm	Springfield, O	Best Cock	2 00
John Luther	Oval City, O	2d Best	1 00
Chas. Caton	Zanesville, O	Best Cockerel	2 00
M. M. Myers	Marysville, O	2d Best	1 00
Chas. Caton	Zanesville, O	Best Hen	2 00
Chas. Caton	Zanesville, O	2d Best	1 00
Chas. Caton	Zanesville, O	Best Pullet	2 00
Chas. McClave	New London, O.	2d Best	1 00
Chas. Caton	Zanesville, O	Best Breeding Pen	3 00
Chas. McClave	New London, O.	2d Best	2 00
WHITE LANGSHAN.			
Chas. Caton	Zanesville, O	Best Cock	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	00
C. E. & W. Smith	Ashley, O	Best Cockerel	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Hen	2 00
John Luther	Oval City, O	2d Best	1 00
H. Wilson	56 W.ColumbiaSt.,Springfield,O	Best Pullet	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
S. C. BROWN LEGHORN.			
Chas. McClave	New London, O	Best Cock	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Cockerel	2 00
C. L. Helsel	R.D.Sta.C,Columbus,O	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
C. Jackson	Buchtel, O.	Best Pullet	2 00
C. Jackson	Buchtel, O.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Breeding Pen	3 00
C. Jackson	Buchtel, O.	2d Best	2 00

POULTRY—Continued.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.

R. C. BROWN LEGHORN.

Jas. A. Tucker	Concord, Mich	Best Cock	$2 00
S. E. Wurst	Elyria, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Cockerel	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
C. H. Courter	Ashley, O	Best Hen	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
John Luther	Oval City, O	Best Pullet	2 00
Chas. McClave	New London, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Breeding Pen	3 00
C. H. Courter	Ashley, O	2d Best	2 00

S. C. WHITE LEGHORN.

Jas. A Tucker	Concord, Mich	Best Cock	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Highland Poultry Farm	Springfield, O	Best Cockerel	2 00
P. R. Pfouts	Bucyrus, O	2d Best	1 00
P. R. Pfouts	Bucyrus, O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
E. E. Eddy	Trimble, O	2d Best	1 00
Highland Poultry Farm	Springfield, O	Best Breeding Pen	3 00
Jas. A. Tucker	Concord, Mich	2d Best	2 00

R. C. WHITE LEGHORN.

C. E. & W. Smith	Ashley, O	Best Cock	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
Chas. McClave	New London O	2d Best	1 00
H. Wilson	56 W.ColumbiaSt.,Springfield,O	Best Hen	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Pullet	2 00
Chas. McClave	New London, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Breeding Pen	3 00
Chas. McClave	New London, O	2d Best	2 00

BLACK LEGHORN.

E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cock	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
M. M. Myers	Marysville, O	Best Cockerel	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
John Luther	Oval City, O	Best Hen	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
J. I. Myers	Marysville, O	Best Pullet	2 00
J. I. Myers	Marysville, O	2d Best	1 00

BUFF LEGHORN

Armbrust Bros	Armbrust, Pa	Best Cock	2 00
Eugene Sites	Elyria, O	2d Best	1 00
John Luther	Oval City, O	Best Cockerel	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Hen	2 00
M. M. Myers	Marysville, O	2d Best	1 00
John Luther	Oval City, O	Best Pullet	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Breeding Pen	3 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	2 00

BLACK MINORCA.

C. E. & W. Smith	Ashley, O	Best Cock	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
A. H. Kochensparger	Junction City, O	Best Cockerel	2 00
John Luther	Oval City, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Hen	2 00
J. I. Myers	Marysville, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
Chas. McClave	New London O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Breeding Pen	3 00
Chas. Caton	Zanesville, O	2d Best	2 00

POULTRY—Continued.

R. C. B. MINORCA.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
S. T. Campbell	Mansfield, O	Best Cock	$2 00
H. M. Close	Newark, O.	2d Best	1 00
S. T. Campbell	Mansfield, O	Best Cockerel	2 00
Chas. McClave	New London, O.	2d Best	1 00
H. M. Close	Newark, O.	Best Hen	2 00
Chas. McClave	New London, O.	2d Best	1 00
S. T. Campbell	Mansfield, O	Best Pullet	2 00
Chas. McClave	New London, O	2d Best	1 00
S. T. Campbell	Mansfield, O	Best Breeding Pen	3 00

WHITE MINORCA.

Chas. Caton	Zanesville, O	Best Cock	2 00
Harry Leibold	Delaware, O	2d Best	1 00
Harry Leibold	Delaware, O	Best Cockerel	2 00
Harry Leibold	Delaware, O.	2d Best	1 00
Harry Leibold	Delaware, O	Best Hen	2 00
Harry Leibold	Delaware, O	2d Best	1 00
Harry Leibold	Delaware, O	Best Pullet	2 00
Harry Leibold	Delaware, O	2d Best	1 00
Harry Leibold	Delaware, O	Best Breeding Pen	3 00
Harry Leibold	Delaware, O	2d Best	2 00

BLUE ANDALUSIAN.

I. M. & J. W. Farber	Sandyville, O	Best Cock	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
S. E. Wurst	Elyria, O.	Best Cockerel	2 00
L. C. Taylor	Gibsonburg, O.	2d Best	1 00
Chas. McClave	New London, O.	Best Hen	2 00
L. C. Taylor	Gibsonburg, O.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Pullet	2 00
S. E. Wurst	Elyria, O.	2d Best	1 00

BLACK SPANISH.

I. M. & J. W. Farber	Sandyville, O	Best Cock	2 00
Chas. Caton	Zanesville, O.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Cockerel	2 00
C. E. & W. Smith	Ashley O.	2d Best	1 00
I. M. & J. W. Farber	Sandyville, O	Best Hen	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00

W. C. BLACK POLISH.

I. M. & J. W. Farber	Sandyville, O	Best Cock	2 00
John Luther	Oval City, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Cockerel	2 00
John Luther	Oval City, O	2d Best	1 00
M. M. Myers	Marysville, O.	Best Hen	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
Julius Frank & Son	Akron, O	Best Pullet	2 00
John Luther	Oval City, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Breeding Pen	3 00
John Luther	Oval City, O	2d Best	2 00

SILVER POLISH—BEARDED OR PLAIN.

Jas. A. Tucker	Concord, Mich.	Best Cock	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Cockerel	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Hen	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Pullet	2 00
John Luther	Oval City, O.	2d Best	1 00

POULTRY—Continued.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
WHITE POLISH—BEARDED OR PLAIN.			
I. M. & J. W. Farber	Sandyville, O	Best Cock	$2 00
Glenn Brown	Mt. Gilead, O	2d Best	1 00
John Luther	Oval City, O	Best Cockerel	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
Glenn Brown	Mt. Gilead, O	Best Hen	2 00
John Luther	Oval City, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Pullet	2 00
John Luther	Oval City, O	2d Best	1 00
GOLDEN POLISH—BEARDED OR PLAIN.			
S. E. Wurst	Elyria O	Best Cock	2 00
John Luther	Oval City, O	2d Best	1 00
John Luther	Oval City, O	Best Cockerel	2 00
John Luther	Oval City, O	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Hen	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Pullet	2 00
H. Wilson	56 W.ColumbiaSt.,Springfield,O	2d Best	1 00
BUFF LACED POLISH.			
John Luther	Oval City, O	Best Cock	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Cockerel	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
John Luther	Oval City, O	Best Hen	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Pullet	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
GOLDEN SPANGLED HAMBURG.			
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cock	2 00
I. M. & J. W. Farber	Sandyville, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Cockerel	2 00
I. M. & J. W. Farber	Sandyville, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Hen	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Julius Frank & Son	Akron, O	Best Pullet	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Julius Frank & Son	Akron O	Best Breeding Pen	3 00
E. J. Haskins	Pittsford, Mich.,R. R. 31	2d Best	2 00
SILVER SPANGLED HAMBURG			
Julius Frank & Son	Akron, O	Best Cock	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Cockerel	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Hen	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Pullet	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Breeding Pen	3 00
E. J. Haskins	Pittsford, Mich, R. R. 31	2d Best	2 00
GOLDEN PENCILED HAMBURG.			
Armbrust Bros	Armbrust, Pa	Best Cock	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Cockerel	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Julius Frank & Son	Akron, O	Best Hen	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Pullet	2 00
Julius Frank & Son	Akron, O	2d Best	1 00

POULTRY—Continued.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
SILVER PENCILED HAMBURG.			
Armbrust Bros	Armbrust, Pa	Best Cock	$2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Cockerel	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Hen	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Pullet	2 00
Glenn Brown	Mt. Gilead, O	2d Best	1 00
BLACK HAMBURG.			
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cock	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Cockerel	2 00
I. M. & J. W. Farber	Sandyville, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Hen	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Pullet	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
WHITE HAMBURG.			
I. M. & J. W. Farber	Sandyville, O	Best Cock	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Cockerel	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Glenn Brown	Mt. Gilead, O	Best Hen	2 00
Julius Frank & Son	Akron, O	2d Best	1 00
Julius Frank & Son	Akron, O	Best Pullet	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
HOUDAN.			
C. E. & W. Smith	Ashley, O	Best Cock	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Cockerel	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
John Luther	Oval City, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Pullet	2 00
John Luther	Oval City, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Breeding Pen	3 00
Jas. A. Tucker	Concord, Mich	2d Best	2 00
CREVECOEUR OR LA FLECHE.			
H. Wilson	56 W.ColumbiaSt.,Springfield,O	Best Cock	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Cockerel	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
H. Wilson	56 W.ColumbiaSt.,Springfield,O	Best Hen	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Pullet	2 00
Eugene Sites	Elyria, O	2d Best	1 00
COLORED, SILVER GRAY OR WHITE DORKING.			
Jas. A. Tucker	Concord, Mich	Best Cock	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Cockerel	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Hen	2 00
M. M. Myers	Marysville, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Pullet	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
BLACK BREASTED RED GAME.			
S. E. Wurst	Elyria, O	Best Cock	2 00
J. I. Myers	Marysville, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
M. M. Myers	Marysville, O	2d Best	1 00
John Luther	Oval City, O	Best Hen	2 00
John Luther	Oval City, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
M. M. Myers	Marysville, O	2d Best	1 00
John Luther	Oval City, O	Best Breeding Pen	3 00

POULTRY—Continued.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.

BROWN RED GAME.

Eugene Sites	Elyria, O	Best Cock	$2 00
Eugene Sites	Elyria, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
M. M. Myers	Marysville, O	2d Best	1 00
Eugene Sites	Elyria, O	Best Hen	2 00
Eugene Sites	Elyria, O	2d Best	1 00
M. M. Myers	Marysville, O	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00

BIRCHEN GAME.

J. I. Myers	Marysville, O	Best Hen	2 00
Eugene Sites	Elyria, O	2d Best	1 00

BLACK AND WHITE GAME.

Armbrust Bros	Armbrust, Pa	Best Cock	2 00
J. I. Myers	Marysville, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Hen	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00

SUMATRA GAME.

Eugene Sites	Elyria, O	Best Cock	2 00
M. M. Myers	Marysville, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
Eugene Sites	Elyria, O	2d Best	1 00
Eugene Sites	Elyria, O	Best Hen	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Pullet	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00

SILVER OR GOLDEN DUCK-WING GAME.

Armbrust Bros	Armbrust, Pa	Best Cock	2 00
Chas. Caton	Zanesville, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
Chas. Caton	Zanesville, O	2d Best	1 00
Eugene Sites	Elyria, O	Best Hen	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00

RED PILE GAME.

Eugene Sites	Elyria, O	Best Cock	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Eugene Sites	Elyria, O	Best Cockerel	2 00
S. E. Wurst	Elyria O	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Hen	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
Eugene Sites	Elyria, O	2d Best	1 00

CORNISH INDIAN GAME.

Jas. A. Tucker	Concord, Mich	Best Cock	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	Best Cockerel	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Hen	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Pullet	2 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Breeding Pen	3 00
Jas. A. Tucker	Concord, Mich	2d Best	2 00

POULTRY—Continued.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
B. B. R. BANTAM.			
S. E. Wurst	Elyria, O	Best Cock	$2 00
Eugene Sites	Elyria, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Eugene Sites	Elyria, O	Best Hen	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
B. R. BANTAM.			
S. E. Wurst	Elyria, O	Best Cock	2 00
A. H. Kochensparger	Junction City, O.	2d Best	1 00
Armbrust Bros.	Armbrust, Pa	Best Cockerel	2 00
A. H. Kochensparger	Junction City, O.	Best Hen	2 00
Armbrust Bros.	Armbrust, Pa	2d Best	1 00
Armbrust Bros.	Armbrust, Pa	Best Pullet	2 00
SILVER OR GOLDEN DUCK-WING BANTAM.			
Eugene Sites	Elyria, O	Best Cock	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Armbrust Bros.	Armbrust, Pa	Best Cockerel	2 00
Armbrust Bros.	Armbrust, Pa	2d Best	1 00
Armbrust Bros.	Armbrust, Pa	Best Hen	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Armbrust Bros.	Armbrust, Pa	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
RED PILE BANTAM.			
C. E. & W. Smith	Ashley, O.	Best Cock	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Cockerel	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
C. E. & W. Smith	Ashley, O.	Best Hen	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Eugene Sites	Elyria, O	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
GOLDEN SEABRIGHT BANTAM.			
Jas. A. Tucker	Concord, Mich.	Best Cock	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
C. E. & W. Smith	Ashley, O.	Best Cockerel	2 00
A. H. Powell	Newark, O.	2d Best	1 00
Jas. A. Tucker	Concord Mich.	Best Hen	2 00
H. Wilson	56 W. Columbia St., Springfield, O	2d Best	1 00
C. E. & W. Smith	Ashley, O.	Best Pullet	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Breeding Pen	3 00
C. E. & W. Smith	Ashley, O.	2d Best	2 00
SILVER SEABRIGHT BANTAM.			
Jas. A. Tucker	Concord, Mich.	Best Cock	2 00
Jas. A. Tucker	Concord, Mich.	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Hen	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
S. E. Wurst	Elyria, O.	2d Best	1 00
Jas. A. Tucker	Concord, Mich.	Best Breeding Pen	3 00
C. E. & W. Smith	Ashley, O.	2d Best	2 00
BUFF COCHIN BANTAM.			
S. E. Wurst	Elyria, O	Best Cock	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Armbrust Bros.	Armbrust, Pa	Best Cockerel	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Armbrust Bros.	Armbrust, Pa	Best Hen	2 00
C. E. & W. Smith	Ashley, O.	2d Best	1 00
Armbrust Bros.	Armbrust, Pa	Best Pullet	2 00
S. E. Wurst	Elyria, O.	2d Best	1 00
C. E. &. W. Smith	Ashley, O	Best Breeding Pen	3 00
Robt. Clemens & Co.	Mechanicsburg, O.	2d Best	2 00

POULTRY—Continued.

WHITE OR BLACK COCHIN BANTAM.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
Armbrust Bros	Armbrust, Pa	Best Cock	$2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Cockerel	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Eugene Sites	Elyria, O	Best Hen	2 00
J. I. Myers	Marysville, O	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Pullet	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00

WHITE OR BLACK ROSE COMBED BANTAM.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
Chas. McClave	New London, O	Best Cock	2 00
Eugene Sites	Elyria, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
John Luther	Oval City, O	2d Best	1 00
Eugene Sites	Elyria, O	Best Hen	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
John Luther	Oval City, O	Best Pullet	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00

JAPANESE BANTAM.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
Armbrust Bros	Armbrust, Pa	Best Cock	2 00
J. I. Myers	Marysville, O	2d Best	1 00
John Luther	Oval City, O	Best Cockerel	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Julius Frank & Son	Akron, O	Best Hen	2 00
Armbrust Bros	Armbrust, Pa	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Pullet	2 00
John Luther	Oval City, O	2d Best	1 00

TURKEYS.

BRONZE.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
Chas. McClave	New London, O	Best Cock	2 00
A. H. Kochensparger	Junction City, O	2d Best	1 00
Fred Anthony	North Lawrence, O	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
Fred Anthony	North Lawrence, O	Best Hen	2 00
Fred Anthony	North Lawrence, O	2d Best	1 00
Fred Anthony	North Lawrence, O	Best Pullet	2 00
Chas. McClave	New London, O	2d Best	1 00

WHITE.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
A. H. Kochensparger	Junction City, O	Best Cock	2 00
Eugene Sites	Elyria, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
A. H Kochensparger	Junction City, O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00

BUFF.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
M. M. Myers	Marysville, O	Best Cock	2 00
Chas. McClave	New London, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
M. M. Myers	Marysville, O	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
M. M. Myers	Marysville, O	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00

NARRAGANSETT.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
Chas. McClave	New London, O	Best Cock	2 00
J. I. Myers	Marysville, O	2d Best	1 00
J. I. Myers	Marysville, O	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
J. I. Myers	Marysville, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
J. I. Myers	Marysville, O	2d Best	1 00

POULTRY—Continued.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
BLACK.			
Chas. McClave	New London, O	Best Cock	$2 00
A. H. Kochensparger	Junction City, O	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
A. H. Kochensparger	Junction, City O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
SLATE.			
S. E. Wurst	Elyria, O	Best Cock	2 00
A. H. Kochensparger	Junction City, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
M. M. Myers	Marysville, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
DUCKS.			
PEKIN.			
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cock	2 00
Eugene Sites	Elyria, O	2d Best	1 00
M. M. Myers	Marysville, O	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich	Best Hen	2 00
E. J. Haskins	Pittsford, Mich	2d Best	1 00
Eugene Sites	Elyria, O	Best Pullet	2 00
E. J. Haskins	Pittsford, Mich	2d Best	1 00
AYLESBURY.			
M. M. Myers	Marysville, O	Best Cock	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
M. M. Myers	Marysville, O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
John Luther	Oval City, O	2d Best	1 00
ROUEN.			
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cock	2 00
Chas. Caton	Zanesville, O	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
J. I. Myers	Marysville, O	2d Best	1 00
M. M. Myers	Marysville, O	Best Pullet	2 00
Chas McClave	New London, O	2d Best	1 00
CAYUGA.			
Chas. McClave	New London, O	Best Cock	2 00
M. M. Myers	Marysville, O	2d Best	1 00
M. M. Myers	Marysville, O	Best Cockerel	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Hen	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
CRESTED WHITE.			
Chas. McClave	New London, O	Best Cock	2 00
M. M. Myers	Marysville, O	2d Best	1 00
J. I. Myers	Marysville, O	Best Cockerel	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
M. M. Myers	Marysville, O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
M. M. Myers	Marysville, O	Best Pullet	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00

POULTRY—Continued.

Name of Owner.	Postoffice.	Kind of Fowl.	Prem.
GRAY CALL.			
Chas. McClave	New London, O	Best Cock	$2 00
Chas. McClave	New London, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
WHITE CALL.			
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cock	2 00
J. I. Myers	Marysville, O	2d Best	1 00
J. I. Myers	Marysville, O	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
J. I. Myers	Marysville, O	Best Hen	2 00
M. M. Myers	Marysville, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
MUSCOVEY, COLORED.			
C. E. & W. Smith	Ashley, O	Best Cock	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Pullet	2 00
Chas. McClave	New London, O	2d Best	1 00
MUSCOVEY, WHITE.			
Chas. McClave	New London, O	Best Cock	2 00
M. M. Myers	Marysville, O	2d Best	1 00
C. E. & W. Smith	Ashley, O	Best Cockerel	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
M. M. Myers	Marysville, O	Best Hen	2 00
Chas. McClave	New London, O	2d Best	1 00
Armbrust Bros	Armbrust, Pa	Best Pullet	2 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
INDIAN RUNNER.			
M. M. Myers	Marysville, O	Best Cock	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
J. I. Myers	Marysville, O	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00

GEESE.

TOULOUSE.			
Chas. Caton	Zanesville, O	Best Cock	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
M. M. Myers	Marysville, O	Best Hen	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Pullet	2 00
Chas. McClave	New London, O	2d Best	1 00
EMBDEN.			
M. M. Myers	Marysville, O	Best Cock	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cockerel	2 00
Chas. McClave	New London, O	2d Best	1 00
Chas. Caton	Zanesville, O	Best Hen	2 00
M. M. Myers	Marysville, O	2d Best	1 00
J. I. Myers	Marysville, O	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00

POULTRY—Continued

Name of Owner.	Postoffice	Kind of Fowl.	Prem.
AFRICAN.			
M. M. Myers	Marysville, O.	Best Cock	$2 00
Chas. McClave	New London, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Cockerel	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
M. M. Myers	Marysville, O.	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	Best Pullet	2 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
BROWN CHINESE.			
S. E. Wurst	Elyria, O	Best Cock	2 00
M. M. Myers	Marysville, O.	2d Best	1 00
S. E. Wurst	Elyria, O	Best Cockerel	2 00
J. I. Myers	Marysville, O.	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
Chas. Caton	Zanesville, O	2d Best	1 00
S. E. Wurst	Elyria, O	Best Pullet	2 00
J. I. Myers	Marysville, O.	2d Best	1 00
WHITE CHINESE.			
Chas. McClave	New London, O	Best Cock	2 00
Chas. Caton	Zanesville, O.	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
J. I. Myers	Marysville, O.	2d Best	1 00
J. I. Myers	Marysville, O.	Best Hen	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Chas. Caton	Zanesville, O.	Best Pullet	2 00
Chas. McClave	New London, O	2d Best	1 00
WILD.			
S. E. Wurst	Elyria, O	Best Cock	2 00
M. M. Myers	Marysville, O.	2d Best	1 00
Chas. McClave	New London, O	Best Cockerel	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Chas. McClave	New London, O	Best Hen	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
Chas. McClave	New London, O	Best Pullet	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
ORNAMENTAL CLASS.			
Chas. McClave	New London, O	Best Pair Swan	2 50
Chas. McClave	New London, O	Best Pair Pea Fowl	2 50
S. E. Wurst	Elyria, O	2d Best	1 50
Eugene Sites	Elyria, O	Best Pair Ring Neck Pheasants	2 50
Eugene Sites	Elyria, O	Best Pair Silver Pheasants	2 50
Eugene Sites	Elyria, O	Best Pair Golden Pheasants	2 50
Eugene Sites	Elyria, O	Best Pair Silkies	2 00
S. E. Wurst	Elyria, O	2d Best	1 00
PIGEONS.			
S. E. Wurst	Elyria, O	Best Collection 5 Varieties	5 00
CLASS COLLECTIONS.			
Chas. McClave	New London, O	Best American Class	4 00
Eugene Sites	Elyria, O	2d Best	2 00
Jas. A. Tucker	Concord, Mich.	Best Asiatic Class	4 00
C. E. & W. Smith	Ashley, O	2d Best	2 00
C. E. & W. Smith	Ashley, O	Best Mediterranean Class	4 00
Jas. A. Tucker	Concord, Mich.	2d Best	2 00
John Luther	Oval City, O	Best Polish Class	4 00
Jas. A. Tucker	Concord, Mich.	2d Best	2 00
Julius Frank & Son	Akron, O	Best Hamburg Class	4 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	2 00
S. E. Wurst	Elyria, O	Best Games and Game Bantams	4 00
Armbrust Bros.	Armbrust, Pa	2d Best	2 00

POULTRY—Concluded.

Name of Owner.	Postoffice.	Award.	Amount.
CLASS COLLECTIONS—Concluded.			
Armbrust Bros	Armbrust, Pa	Best Bantams, Not Game	$4 00
C. E. & W. Smith	Ashley, O	2d Best	1 00
Jas. A. Tucker	Concord, Mich	2d Best	1 00
Chas. McClave	New London, O	Best Turkeys	4 00
S. E. Wurst	Elyria, O	2d Best	2 00
Chas. McClave	New London, O	Best Geese	4 00
S. E. Wurst	Elyria, O	2d Best	1 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	1 00
Chas. McClave	New London, O	Best Ducks	4 00
E. J. Haskins	Pittsford, Mich., R. R. 31	2d Best	2 00
Chas. McClave	New London, O	Best Collection of Poultry by One Exhibitor	Medal.
Ohio Incubator & Brooder Co.	Columbus, O	Best Incubator in Operation	Medal.
Chas. E. Adair	Leesville, O	Best Brooder in Operation	Medal.

SIXTH DEPARTMENT—FARM PRODUCTS.

J. L. CARPENTER, Member in Charge.

GRAINS, SEEDS, TOBACCO, DAIRY AND CEREAL MILL PRODUCTS.

Owner's Name and Postoffice.	Name of Article.	Amount.
	White Wheats—Smooth.	
J. L. Keckley, Marysville, O., R. R. 3	Best Peck Early White Leader	$2 00
Albert Pearce, Elyria, O., R. R. 2	2d Best	1 00
J. L. Keckley, Marysville, O.,	Best Peck Golden Coin	2 00
Albert Pearce, Elyria, O.	2d Best	1 00
J L. Keckley, Marysville, O.	Best Peck International No. 6	2 00
W. D. Whipps. Marion, O	2d Best	1 00
F. M. Whipps, Byhalia, O.	Best Peck Royal Australian	2 00
W. D. Whipps, Marion, O	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck Any Other Variety	2 00
	White Wheats—Bearded.	
J. L. Keckley, Marysville, O.	Best Peck Democrat	2 00
	Red Wheats—Smooth.	
J. L. Keckley, Marysville, O.	Best Peck Poole	2 00
W. L. Parrett, Lyndon, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck Mealy	2 00
F. M. Whipps, Byhalia, O.	2d Best	1 00
W. D. Whipps, Marion, O.	Best Peck Red Russian	2 00
F. M. Whipps, Byhalia, O.	2d Best	1 00
J. L. Keckley Marysville, O.	Best Peck Early Ripe	2 00
Harry Leibold, Delaware, O	Best Peck Fultz	2 00
J. L. Keckley, Marysville, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck Any Other Variety	2 00
Albert Pearce, Elyria, O.	2d Best	1 00
	Red Wheats—Bearded.	
Albert Pearce, Elyria, O.	Best Peck Valley	2 00
W. D. Whipps, Marion, O.	2d Best	1 00
Harry Leibold, Delaware, O	Best Peck Velvet Chaff (Penquits)	2 00
J. L. Keckley, Marysville, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck Red Cross	2 00
F. M. Whipps, Byhalia, O.	2d Best	1 00
Albert Pearce, Elyria, O.	Best Peck Egyptian	2 00
J. L. Keckley, Marysville, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck Nigger	2 00
Albert Pearce, Elyria, O.	2d Best	1 00
W. D. Whipps, Marion, O	Best Peck Mediterranean	2 00
Albert Pearce, Elyria, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck Any Other Variety	2 00
Albert Pearce, Elyria, O.	2d Best	1 00
	White Oats.	
J. L. Keckley, Marysville, O.	Best Peck Welcome	1 50
F. M. Whipps, Byhalia, O.	2d Best	75
Albert Pearce, Elyria, O.	Best Peck Lincoln	1 50
J. L. Keckley, Marysville, O.	2d Best	75
F. M. Whipps, Byhalia, O.	Best Peck Improved American	1 50
J. L. Keckley, Marysville, O.	Best Peck White Belgian	1 50
Albert Pearce, Elyria, O.	2d Best	75
J. L. Keckley, Marysville, O.	Best Peck Clydesdale	1 50
Harry Leibold, Delaware, O	2d Best	75
J. L. Keckley, Marysville, O.	Best Peck Banner	1 50
Albert Pearce, Elyria, O.	2d Best	75

FARM PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article.	Amount.
	Black Oats, Barley, Rye, Etc.	
J. L. Keckley, Marysville, O.	Best Peck Black Tartarian Oats	$1 50
Harry Leibold, Delaware, O.	2d Best	75
J. L. Keckley, Marysville, O.	Best Peck Black Russian Oats	1 50
F. M. Whipps, Byhalia, O.	2d Best	75
Harry Liebold, Delaware, O.	Best Peck Monarch Oats	1 50
J. L. Keckley, Marysville, O.	2d Best	75
J. L. Keckley, Marysville, O.	Best Peck Winter Rye	2 00
F. M. Whipps, Byhalia, O.	2d Best	1 00
Harry Leibold, Delaware, O.	Best Peck Beardless Fall Barley	2 00
J. L. Keckley, Marysville, O.	2d Best	1 00
F. M. Whipps, Byhalia, O.	Best Peck Spring Barley	2 00
Harry Leibold Delaware, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck Silver Hull Buckwheat	1 50
F. M. Whipps, Byhalia, O.	2d Best	75
Harry Leibold, Delaware, O.	Best Peck Japanese Buckwheat	1 50
J. L. Keckley, Marysville, O.	2d Best	75
Albert Pearce, Elyria, O.	Best Peck Spelt.	1 50
I. B. Keckley, Marysville, O., R. R. 3	2d Best	75
J. L. Keckley, Marysville, O.	Best Peck Common Flaxseed	2 00
Albert Pearce, Elyria, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best 2 Quarts Canada Field Peas	1 50
Albert Pearce, Elyria, O.	2d Best	75
W. D. Whipps, Marion, O.	Best 2 Quarts Marrrow Fat Field Peas	1 50
Albert Pearce, Elyria, O.	2d Best	75
	Grass Seeds.	
J. L. Keckley, Marysville, O.	Best Peck Timothy	2 00
W. D. Whipps, Marion, O.	2d Best	1 00
M. J. & C. E. Leavitt, Mechanicsburg, O.	Best Peck Kentucky Blue Brass	2 00
W. D. Whipps, Marion, O.	2d Best	1 00
F. M. Whipps, Byhalia, O.	Best Peck Orchard	2 00
Albert Pearce, Elyria, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck Red Top	2 00
E. G. Stockman, Prospect, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck German Millet	2 00
W. D. Whipps, Marion, O.	2d Best	1 00
W. D. Whipps, Marion, O.	Best Peck Hungarian Grass	2 00
J. L. Keckley, Marysville, O.	2d Best	1 00
	Clover Seed.	
Harry Leibold, Delaware, O.	Best Peck Mammoth Red	2 00
J. L. Keckley, Marysville, O.	2d Best	1 00
Harry Leibold, Delaware, O.	Best Peck Common Red	2 00
J. L. Keckley, Marysville, O.	2d Best	1 00
J. L. Keckley, Marysville, O.	Best Peck Alsike	2 00
M. J. & C. E. Leavitt, Mechaniscburg, O.	2d Best	1 00
Harry Leibold, Delaware, O.	Best Peck Crimson	2 00
J. L. Keckley, Marysville, O.	2d Best	1 00
F. M. Whipps, Byhalia, O.	Best Peck Alfalfa	2 00
J. L. Keckley, Marysville, O.	2d Best	1 00
	Displays.	
J. L. Keckley, Marysville, O.	Best Display of Grain in Straw and Threshed	8 00
Geo. N. Wildman, Springfield, O., R. R. 6	2d Best	4 00
F. M. Whipps, Byhalia, O.	Best Display of Grasses, Including Clover and Sedges	5 00
Harry Leibold, Delaware, O.	2d Best	3 00
	Tobacco.	
F. M. Whipps, Byhalia, O.	Best Four Hands Ohio Seed Leaf	2 00
W. D. Whipps, Marion, O.	2d Best	1 00
F. M. Whipps, Byhalia, O.	Best Four Hands White Burley	2 00
W. D. Whipps, Marion, O.	2d Best	1 00
D. F. Corwin, Springboro, O.	Best Four Hands Little Dutch	2 00
Harry Leibold, Delaware, O.	2d Best	1 00
D. F. Corwin, Springboro, O.	Best Four Hands Zimmer's Spanish	2 00
D. F. Corwin, Springboro, O.	2d Best	1 00
	Yellow Corn.	
J. L. Keckley, Marysville, O.	Best Twenty Ears Leaming	3 00
J. L. Keckley, Marysville, O.	Best Twenty Ears Reid's Yellow Dent	3 00
F. M. Whipps, Byhalia, O.	2d Best	2 00
J. L. Keckley, Marysville, O.	Best Twenty Ears Riley's Favorite	3 00
I. B. Keckley, Marysville, O.	2d Best	2 00

FARM PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article.	Amount.
	Yellow Corn.	
I. B. Keckley, Marysville, O.	Best Twenty Ears Clarage	$3 00
J. L. Keckley, Marysville, O.	2d Best	2 00
F. M. Whipps, Byhalia, O.	Best Twenty Ears Any Other Variety	3 00
J. L. Keckley, Marysville, O.	2d Best	2 00
	White Corn.	
J. L. Keckley, Marysville, O.	Best Twenty Ears Boone County White	3 00
I. B. Keckley, Marysville, O.	2d Best	2 00
J. L. Keckley, Marysville, O.	Best Twenty Ears Silver Mine	3 00
Albert Pearce, Elyria, O.	2d Best	2 00
J. L. Keckley, Marysville, O.	Best Twenty Ears Early Dawn	3 00
J. L. Keckley, Marysville, O.	Best Twenty Ears Legal Tender	3 00
I. B. Keckley, Marysville, O.	2d Best	2 00
J. L. Keckley, Marysville, O.	Best Twenty Ears Any Other Variety	3 00
I. B. Keckley, Marysville, O.	2d Best	2 00
	Flint Corn.	
I. B. Keckley, Marysville, O.	Best Twenty Ears White Flint	3 00
J. L. Keckley, Marysville, O.	2d Best	2 00
J. L. Keckley, Marysville, O.	Best Twenty Ears Yellow Flint	3 00
W. D. Whipps, Marion, O	2d Best	2 00
	Pop Corn.	
Albert Pearce, Elyria, O.	Best Twenty Ears White Pop Corn	2 00
M. J. & C. E. Leavitt, Mechanicsburg, O	2d Best	1 00
J. L. Keckley, Marysville, O,	Best Twenty Ears Red Pop Corn	2 00
I. B. Keckley, Marysville, O.	2d Best	1 00
Harry Leibold, Delaware, O	Best Twenty Ears Yellow Pop Corn	2 00
W. D. Whipps, Marion, O.	2d Best	1 00
	Sweet Corn (Crop of 1904).	
Geo. N. Wildman, Springfield, O	Best Twenty Ears Early Sweet Corn	3 00
W. D. Whipps, Marion, O.	2d Best	2 00
Harry Leibold, Delaware, O	Best Twenty Ears Late Sweet Corn	3 00
Geo. N. Wildman, Springfield, O	2d Best	2 00
	Displays.	
J. L. Keckley, Marysville, O.	Best Display Ten Varieties Yellow Field Corn	10 00
J. L. Keckley, Marysville, O.	Best Display Ten Varieties White Field Corn	10 00
Harry Leibold, Delaware, O	Best Display Five Varieties Sweet Corn	5 00
Alex. Wilson, Newark, O., R. R. 1	2d Best	3 00
J. L. Keckley, Marysville, O	Best Display Six Varieties Pop Corn	5 00
I. B. Keckley, Marysville, O.	2d Best	3 00
J. L. Keckley, Marysville, O.	Best Display Corn on Stalk	5 00
Alex. Wilson, Newark, O.	2d Best	3 00
W. D. Whipps, Marion, O	Best Twenty Pounds Broom Corn	2 00
M. J. & C. E. Leavitt, Mechanicsburg, O	2d Best	1 00
	Potatoes and Roots.	
M. J. & C. E. Leavitt, Mechanicsburg, O	Best Peck Banner	1 50
F. J. Coburn, Mechanicsburg, O.	2d Best	75
M. J. & C. E. Leavitt, Mechanicsburg, O	Best Peck Beauty of Hebron	1 50
W. D. Whipps, Marion, O	2d Best	75
Alex. Wilson, Newark, O.	Best Peck Bliss' Triumph	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O	2d Best	75
F. J. Coburn, Mechanicsburg, O.	Best Peck Burpee's Early	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O	2d Best	75
M. J. & C. E. Leavitt, Mechanicsburg, O	Best Peck Bovee	1 50
Alex. Wilson, Newark, O.	2d Best	75
F. J. Coburn, Mechanicsburg, O.	Best Peck Carman No. 3	1 50
Alex. Wilson, Newark, O.	2d Best	75
Harry Leibold, Delaware, O	Best Peck Early Ohio	1 50
George Diegritz, Madisonville, O., Station M.	2d Best	75
W. D. Whipps, Marion, O	Best Peck Early Northern	1 50
F. J. Coburn, Mechanicsburg, O.	2d Best	75
F. J. Coburn, Mechanicsburg, O.	Best Peck Early Pride	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O	2d Best	75
M. J. & C. E. Leavitt, Mechanicsburg, O	Best Peck Early Rose	1 50
W. D. Whipps, Marion, O	2d Best	75
Alex. Wilson, Newark, O.	Best Peck Early Puritan	1 50
F. J. Coburn, Mechanicsburg, O.	2d Best	75

FARM PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article.	Amount.
	Potatoes and Roots	
Harry Leibold, Delaware, O.	Best Peck Early Trumbull	$1 50
F. J. Coburn, Mechanicsburg, O.	2d Best	75
Hilas E. Craig, Groveport, O	Best Peck Early Thoroughbred	1 50
F. J. Coburn, Mechanicsburg, O.	2d Best	75
M. J. & C. E. Leavitt, Mechanicsburg, O.	Best Peck Early Six Weeks	1 50
W. D. Whipps, Marion, O.	2d Best	75
F. J. Coburn, Mechanicsburg, O.	Best Peck Early Michigan	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O.	2d Best	75
F. M. Whipps, Byhalia, O.	Best Peck Green Mountain	1 50
Alex. Wilson, Newark, O.	2d Best	75
F. J. Coburn, Mechanicsburg, O.	Best Peck Irish Cobbler	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O.	2d Best	75
W. D. Whipps, Marion, O.	Best Peck Maggie Murphy	1 50
F. M. Whipps, Byhalia, O.	2d Best	75
Alex. Wilson Newark, O.	Best Peck Livingston	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O.	2d Best	75
Alex. Wilson, Newark, O.	Best Peck Michigan Russet	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O.	2d Best	75
M. J. & C. E. Leavitt, Mechanicsburg, O.	Best Peck New Queen	1 50
F. M. Whipps, Byhalia, O.	2d Best	75
Alex. Wilson, Newark, O.	Best Peck Red Seneca Beauty	1 50
T. D. Kalb, Groveport, O.	2d Best	75
Alex. Wilson, Newark O.	Best Peck Rural New Yorker No. 2	1 50
W. D. Whipps, Marion, O.	2d Best	75
F. J. Coburn, Mechanicsburg, O.	Best Peck Sir Walter Raleigh	1 50
Alex. Wilson, Newark, O.	2d Best	75
A. H. Powell, Newark, O., R. R. 3	Best Peck Uncle Sam	1 50
Alex. Wilson, Newark, O.	2d Best	75
W. D. Whipps, Marion, O.	Best Peck Vaughan	1 50
Alex. Wilson, Newark, O.	2d Best	75
Alex. Wilson, Newark, O.	Best Peck White Mountain	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O.	Best Peck White Ohio	1 50
Alex. Wilson Newark, O.	Best Peck Whiton's White Mammoth	1 50
Harry Leibold, Delaware, O.	2d Best	75
W. D. Whipps, Marion, O.	Best Peck World's Fair	1 50
F. M. Whipps, Byhalia, O.	2d Best	75
Alex. Wilson, Newark, O.	Best Display Twenty-five Varieties Irish Potatoes	15 00
M. J. & C. E. Leavitt, Mechanicsburg, O.	2d Best	8 00
A. H. Powell, Newark, O.	Best Peck Yellow Sweet	1 50
J. L. Keckley, Marysville, O.	2d Best	75
A. H. Powell, Newark, O.	Best Peck Red Sweet	1 50
T. D. Kalb, Groveport, O.	2d Best	75
Hilas E. Craig, Groveport, O.	Best Peck White Sweet	1 50
T. D. Kalb, Groveport, O.	2d Best	75
Hilas E. Craig, Groveport, O.	Best Peck Red Yams	1 50
T. D. Kalb, Groveport, O.	2d Best	75
A. H. Powell, Newark, O.	Best Peck White Yams	1 50
Hilas E. Craig, Groveport, O.	2d Best	75
Hilas E. Craig, Groveport, O.	Best Display Sweet Potatoes and Yams	4 00
T. D. Kalb, Groveport, O.	2d Best	2 00
A. H. Powell, Newark, O.	Best Twelve Carrots Long Orange	1 50
F. M. Whipps, Byhalia, O.	2d Best	75
A, H. Powell Newark, O.	Best Twelve Carrots Danver's	1 50
F. M. Whipps, Byhalia, O.	2d Best	75
W. D. Whipps, Marion, O.	Best Twelve Carrots, Ox Heart	1 50
A. H. Powell, Newark, O.	2d Best	75
J. L. Keckley, Marysville, O.	Best Twelve Carrots, White Belgian	1 50
A. H. Powell, Newark, O.	2d Best	75
J. L. Keckley, Marysville, O.	Best Display of Carrots	3 00
A. H. Powell, Newark, O.	2d Best	2 00
F. J. Coburn, Mechanicsburg, O.	Best Twelve Parsnips	1 50
F. M. Whipps, Byhalia, O.	2d Best	75
J. L. Keckley, Marysville, O.	Best Twelve Roots Salsify	1 50
W. D. Whipps, Marion, O.	2d Best	75
F. M. Whipps, Byhalia, O.	Best Six Beets, Eclipse	1 50
W. D. Whipps, Marion, O.	2d Best	75
A. H. Powell, Newark, O.	Best Six Beets, Columbian	1 50
J. L. Keckley, Marysville, O.	2d Best	75
J. L. Keckley, Marysville, O.	Best Six Beets, Egyptian	1 50
A. H. Powell Newark, O.	2d Best	75
A. H. Powell, Newark, O.	Best Six Beets, Dark Blood Turnip	1 50
Howard Powell, Newark, O., R. R. 3	2d Best	75
Alex. Wilson, Newark, O.	Best Six Beets, Long Blood	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O.	2d Best	75
A. H. Powell, Newark, O.	Best Two Varieties Sugar Beets	1 50
J. L. Keckley, Marysville, O.	2d Best	75
A. H. Powell Newark, O.	Best Three Beets, Long Red Mangel Wurzel	1 50
Howard Powell, Newark O.	2d Best	75
A. H. Powell, Newark, O.	Best Three Beets, Long Yellow Mangel Wurzel	1 50
J. L. Keckley, Marysville, O.	2d Best	75

FARM PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article.	Amount.
	Potatoes and Roots.	
Howard Powell, Newark, O	Best Three Beets, Golden Tankard	$1 50
A. H. Powell, Newark, O	2d Best	75
A. H. Powell, Newark, O	Best Three Beets, Red Globe	1 50
J. L. Keckley, Marysville, O	2d Best	75
A. H. Powell, Newark, O	Best Three Beets, Yellow Globe	1 50
J. L. Keckley, Marysville, O	2d Best	75
A. H. Powell, Newark, O	Best Display of Beets, Twelve Varieties	4 00
Howard Powell, Newark, O	2d Best	2 00
A. H. Powell, Newark, O	Best Display of Beets and Turnips	4 00
J. L. Keckley, Marysville, O	2d Best	2 00
J. L. Keckley, Marysville, O	Best Six Purple Kohlrabi	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
Geo. N. Wildman, Springfield, O	Best Six White Kohlrabi	1 50
F. J. Coburn, Mechanicsburg, O	2d Best	75
M. J. & C. E. Leavitt, Mechanicsburg, O	Best Six Rutabagas	1 50
Albert Pearce, Elyria, O	2d Best	75
A. H. Powell, Newark, O	Best Peck Turnips, Purple Top	1 50
Alex. Wilson, Newark, O	2d Best	75
W. D. Whipps, Marion, O	Best Peck Turnips, White Top	1 50
J. L. Keckley, Marysville, O	Best Peck Onions, Red Globe	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O	2d Best	75
F. M. Whipps, Byhalia, O	Best Peck Onions, White Globe	1 50
J. L. Keckley, Marysville, O	2d Best	75
J. L. Keckley, Marysville, O	Best Peck Onions, Yellow Globe Danvers	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O	2d Best	75
J. L. Keckley, Marysville, O	Best Peck Onions, Red Wethersfield	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
Howard Powell, Newark, O	Best Peck Onions, Red Rocca	1 50
A. H. Powell, Newark, O	2d Best	75
J. L. Keckley, Marysville, O	Best Peck Onions, Prizetaker	1 50
M. J. & C. E. Leavitt, Mechanicsburg, O	2d Best	75
J. L. Keckley, Marysville, O	Best Peck Onions, Potato	1 50
F. M. Whipps, Byhalia, O	2d Best	75
Alex. Wilson, Newark, O	Best Display Onions, Ten Varieties	5 00
J. L. Keckley, Marysville, O	2d Best	3 00
	Vegetables.	
Alex. Wilson, Newark, O	Best Peck Acme Tomatoes	1 50
A. H. Powell, Newark, O	2d Best	75
A. H. Powell, Newark, O	Best Peck Aristocrat Tomatoes	1 50
A. H. Powell, Newark, O	Best Peck Buckeye State	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
A. H. Powell, Newark, O	Best Peck Beauty Tomatoes	1 50
Alex. Wilson, Newark, O	2d Best	75
Alex. Wilson, Newark, O	Bes Peck Dwarf Champion	1 50
A. H. Powell, Newark, O	2d Best	75
A. H. Powell, Newark, O	Best Peck Favorite Tomatoes	1 50
Howard Powell, Newark, O	Best Peck Golden Queen Tomatoes	1 50
A. H. Powell, Newark, O	2d Best	75
Alex. Wilson, Newark, O	Best Peck Royal Red Tomatoes	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
Alex. Wilson, Newark, O	Best Peck Perfection Tomatoes	1 50
Howard Powell, Newark, O	2d Best	75
A. H. Powell, Newark, O	Best Peck Ponderosa Tomatoes	1 50
Howard Powell, Newark, O	2d Best	75
Alex. Wilson, Newark, O	Best Peck Stone Tomatoes	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
Alex. Wilson, Newark, O	Best Peck Spark's Earliana Tomatoes	1 50
A. H. Powell, Newark, O	2d Best	75
A. H. Powell, Newark, O	Best Peck Success Tomatoes	1 50
Alex. Wilson, Newark, O	2d Best	75
Alex. Wilson, Newark, O	Best Peck Magnus Tomatoes	1 50
A. H. Powell, Newark, O	2d Best	75
A. H. Powell, Newark, O	Best Peck McVay Tomatoes	1 50
Howard Powell, Newark, O	2d Best	75
A. H. Powell, Newark, O	Best Peck Enormous Tomatoes	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
Alex. Wilson, Newark, O	Best Display Ten Varieties Tomatoes	5 00
A. H. Powell, Newark, O	2d Best	3 00
A. H. Powell, Newark, O	Best All Seasons Cabbage	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
Geo. N. Wildman, Springfield, O	Best Autumn King Cabbage	1 50
A. H. Powell, Newark, O	Best Surehead Cabbage	1 50
Alex. Wilson, Newark, O	2d Best	75
A. H. Powell, Newark, O	Best Flat Dutch Cabbage	1 50
W. D. Whipps, Marion, O	2d Best	75
A. H. Powell, Newark, O	Best Drumhead Cabbage	1 50
F. J. Coburn, Mechanicsburg, O	Best Red Dutch Cabbage	1 50

FARM PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article	Amount.
	Vegetables.	
F. M. Whipps, Byhalia, O	Best Winningstadt Cabbage	$1 50
A. H. Powell, Newark, O	2d Best	75
Geo. N. Wildman, Springfield O	Best Early Summer Cabbage	1 50
A. H. Powell, Newark, O	2d Best	75
A. H. Powell, Newark, O	Heaviest Head of Cabbage	1 50
Geo. N. Wildman, Springfield, O	2d Heaviest	75
Albert Pearce, Elyria, O.	Best White Plume Celery	1 50
A. H. Powell, Newark, O	2d Best	75
Albert Pearce, Elyria, O.	Best Golden Self-Blanching Celery	1 50
A. H. Powell, Newark, O	2d Best	75
Albert Pearce, Elyria, O.	Best Giant Pascal Celery	1 50
A. H. Powell, Newark, O	2d Best	75
Albert Pearce, Elyria, O.	Best Display Celery Five Varieties	3 00
A. H. Powell, Newark, O	Best Twelve Largest Peppers	1 50
Howard Powell, Newark, O	2d Best	75
W. D. Whipps, Marion, O	Best Boston Marrow Squashes	1 50
F. M. Whipps, Byhalia O	2d Best	75
Alex. Wilson, Newark, O	Best Cushaw Squashes	1 50
T. D. Kalb, Groveport, O	2d Best	75
J. L. Keckley, Marysville, O	Best Essex Hybrid Squashes	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
Geo. N. Wildman, Springfield, O	Best Marblehead Squashes	1 50
W. D. Whipps, Marion, O	Best Hubbard Squashes	1 50
F. M. Whipps, Byhalia, O	2d Best	75
Geo. N. Wildman, Springfield, O	Best Red Hubbard Squashes	1 50
Hilas E. Craig, Groveport, O.	2d Best	75
A. H. Powell, Newark, O	Best Yellow Crookneck Squashes	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
Geo. N. Wildman, Springfield, O	Best Pike's Peak Squashes	1 50
Hilas E. Craig, Groveport, O.	2d Best	75
J. L. Keckley, Marysville, O	Best Mammoth Chili Squashes	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
F. M. Whipps, Byhalia, O	Best Yellow Scallop Squashes	1 50
T. D. Kalb, Groveport, O	2d Best	75
Geo. N. Wildman, Springfield, O	Heaviest Squash	2 00
A. H. Powell, Newark, O	2d Heaviest	1 00
T. D. Kalb, Groveport, O	Best Display Squashes	5 00
Geo. N. Wildman, Springfield, O	2d Best	3 00
Alex. Wilson, Newark, O	Best Yellow Field Pumpkins	2 00
T. D. Kalb, Groveport, O	2d Best	1 00
Geo. N. Wildman, Springfield, O	Best Sweet or Pie Pumpkins	2 00
Hilas E. Craig, Groveport, O.	2d Best	1 00
Alex. Wilson, Newark, O	Heaviest Pumpkin	2 00
Geo. N. Wildman, Springfield, O	2d Heaviest	1 00
Hilas E. Craig, Groveport, O.	Best Black Diamond Watermelons	2 00
Hilas E. Craig, Groveport, O.	Best Kolb's Gem Watermelons	2 00
T. D. Kalb, Groveport, O	2d Best	1 00
Alex. Wilson, Newark, O	Best Ice Cream Watermelons	2 00
T. D. Kalb, Groveport, O	Best Sweetheart Watermelons	2 00
Hilas E. Craig, Groveport, O.	2d Best	1 00
Alex. Wilson, Newark, O	Best Nabob Watermelons	2 00
M. J. & C. E. Leavitt, Mechanicsburg, O	Best Phinney's Early Watermelons	2 00
Alex. Wilson, Newark, O	2d Best	1 00
Alex. Wilson, Newark, O	Best Hoosier King Watermelons	2 00
T. D. Kalb, Groveport, O	Best Rattlesnake Watermelons	2 00
Hilas E. Craig, Groveport, O.	2d Best	1 00
Alex. Wilson, Newark, O	Best Kleckley's Sweet Watermelons	2 00
T. D. Kalb, Groveport, O	Best Dark Icing Watermelons	2 00
Alex. Wilson, Newark, O	2d Best	1 00
J. L. Keckley, Marysville, O	Best Citron	2 00
Alex. Wilson, Newark, O	2d Best	1 00
Hilas E. Craig, Groveport, O.	Heaviest Watermelon	2 00
T. D. Kalb, Groveport, O	2d Heaviest	1 00
Geo. N. Wildman, Springfield, O	Best Osage Muskmelons	1 50
A. H. Powell, Newark, O	2d Best	75
A. H. Powell, Newark, O	Best Montreal Muskmelons	1 50
A. H. Powell, Newark, O	Best Rose Gem Muskmelons	1 50
Howard Powell, Newark, O	2d Best	75
F. J. Coburn, Mechanicsburg, O	Best Bay View Muskmelons	1 50
Geo. N. Wildman, Springfield, O	Best Baltimore Muskmelons	1 50
Geo. N. Wildman, Springfield, O	Best Tip Top Muskmelons	1 50
A. H. Powell, Newark, O	2d Best	75
Alex. Wilson, Newark, O	Best Hackensack Muskmelons	1 50
Geo. N. Wildman, Springfield, O	2d Best	75
Alex. Wilson, Newark, O	Best Emerald Gem Muskmelons	1 50
A. H. Powell, Newark, O	Best Twelve Cucumbers	1 00
Alex. Wilson, Newark, O	2d Best	50
A. H. Powell, Newark, O	Best Purple Egg Plant Fruits	1 00
Howard Powell. Newark, O	2d Best	50

FARM PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article.	Amoutt.
	Vegetables	
T. D. Kalb, Groveport, O.	Best Two Quarts Lima Beans	$1 00
Hilas E. Craig, Groveport, O.	2d Best	50
Albert Pearce, Elyria, O.	Best Two Quarts Marrowfat Beans	1 00
J. L. Keckley, Marysville, O.	2d Best	50
J. L. Keckley, Marysville, O.	Best Two Quarts Navy Beans	1 00
I. B. Keckley, Marysville, O.	2d Best	50
W. D. Whipps, Marion, O.	Best Two Quarts Golden Wax Beans	1 00
J. L. Keckley, Marysville, O.	2d Best	50
W. D. Whipps, Marion, O.	Best Two Quarts White Kidney Beans	1 00
J. L. Keckley, Marysville, O.	2d Best	50
J. L. Keckley, Marysville, O.	Best Two Quarts Red Kidney Beans	1 00
Albert Pearce, Elyria, O.	2d Best	50
Harry Leibold, Delaware, O.	Best Display Beans, Twenty Varieties	4 00
J. L. Keckley, Marysville, O.	2d Best	2 00
Alex. Wilson, Newark, O.	Best Six Stalks Rhubarb	1 00
A. H. Powell, Newark, O.	2d Best	50
W. D. Whipps, Marion, O.	Best Twelve Radishes, Long White	1 00
Geo. N. Wildman, Springfield, O.	2d Best	50
Geo. N. Wildman, Springfield, O.	Best Twelve Radishes, Long Red	1 00
W. D. Whipps, Marion, O.	2d Best	50
Alex. Wilson, Newark, O.	Best Display Vegetables	20 00
A. H. Powell, Newark, O.	2d Best	12 00
Geo. N. Wildman, Springfield, O.	3d Best	8 00
	County Exhibits—Farm Products	
J. L. Keckley, Marysville, O.	Best Exhibit of Farm Products	200 00
Geo. N. Wildman, Springfield, O.	2d Best	180 00
W. D. Whipps, Marion, O.	3d Best	160 00
A. H. Powell, Newark, O.	4th Best	140 00
Albert Pearce, Elyria, O.	5th Best	120 00
M. J. & C. E. Leavitt, Mechanicsburg, O.	6th Best	100 00
	Home Dairy Butter.	
Jessie Goodrich, Powell, O.	Best Ten-Pound Package	5 00
Jane Fuller, Powell, O.	Best Five Single Pound Prints	5 00

CREAMERY BUTTER

Owner's Name and Postoffice.	Score.	Amount.
C. E. Hynes, Summit Station, Licking County, O.	97.0%	$6 47
Ben M. Rutan & Co., Marysville, O.	95.5%	5 26
The New Vienna Creamery Company, New Vienna, O	95.0%	4 86
W. C. Barrett, Fairview, O	94.0%	4 05
C. M. McConnell, Woodstock, O.	94.0%	4 05
The McJunkin Straight Dairy Company, Windsor, O.	94.0%	4 05
W. H. Parrish, Loudonville, O.	93.0%	3 23
E. G. Garber, Belleville, O.	93.0%	3 23
H. E. McConnell, Milford Center, O.	93.0%	3 23
F. R. Hackman, Delaware, O.	92.5%	2 83
Hynes & Belt, Basil, O.	92.0%	2 43
H. L. Rice, Huckleberry, O., R. R. 1	92.0%	2 43
L. C. Shepard, Urbana, O., R. R. 8.	91.5%	2 03
Q. A. Underhill, Lester, Medina County, O	98.0%	7 29
J. S. Brubaker, Columbiana, O.	97.5%	6 88
Gratiot Creamery Company, Gratiot, Muskingum County, O	94.5%	4 45
H. D. Budd, Columbus, O., 155 W. Frambes Ave.	93.0%	3 23
Total		$70 00

NOTE.—Awards in Creamery Butter are made pro rata of seventy dollars ($70.00) among exhibitors showing Butter scoring ninety per cent (90%) or better. Exhibit of twenty pounds or more, in tubs or single pound prints.

DISPLAY CREAMERY BUTTER

Owner's Name and Postoffice.	Name of Article	Amount.
C. E. Hynes, Summit Station, O.	Best Display Creamery Butter	Silver Cup
Ben W. Rutan & Co., Marysville, O.	2d Best	Silver Medal

FARM PRODUCTS—Continued.

CHEESE.

Owner's Name and Postoffice.	Name of Article.	Amount.
The Triumph Dairy Co., Huckleberry, O., R. R. 1	Best Chedder Cheese, Fifty Pounds. . .	$8 00
H. L Rice, Huckleberry, O	2d Best	4 00
J. W. Parkinson, Wellington, O	Best Edam Cheese, Three Pounds	5 00

BEES AND HONEY.

Owner's Name and Postoffice.	Name of Article.	Amount.
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	Best Display Comb Honey.	$10 00
Jessie Goodrich, Powell, O.	2d Best	5 00
Jessie Goodrich, Powell, O.	Best Case Twenty-four Sections White Clover Comb Honey.	3 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	2d Best	2 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	Best Case Twenty-four Sections Bass Wood Comb Honey.	3 00
Jessie Goodrich, Powell, O.	2d Best	2 00
Jessie Goodrich, Powell, O.	Best Case Twenty-four Sections Comb Honey, Fall Flowers.	3 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	2d Best	2 00
M. J. &. C. E. Leavitt, Mechanicsburg, O . . .	Best Display Extracted Honey.	10 00
Jessie Goodrich, Powell, O.	2d Best	5 00
Jessie Goodrich, Powell, O.	Best Six Jars Extracted Honey, Qt. Size . .	3 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	2d Best	2 00
Jessie Goodrich, Powell, O.	Best Six Jars Extracted Honey, Pt. Size. . .	2 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	2d Best	1 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	Best Display Candied Honey.	5 00
Jessie Goodrich, Powell, O.	2d Best	3 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	Best Display Beeswax.	2 00
Jessie Goodrich, Powell, O.	2d Best	1 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	Best Nucleus Italian Bees	3 00
Jessie Goodrich, Powell, O.	2d Best	2 00
Chester C. Leavitt, Mechanicsburg, O.	Best Nucleus Carniolan.	3 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	2d Best	2 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	Best Display Comb Foundation	2 00
Chester C. Leavitt, Mechanicsburg, O.	2d Best	1 00
M. J. & C. E. Leavitt, Mechanicsburg, O. . . .	Best, Largest and Finest Display Honey.	15 00
Jessie Goodrich, Powell, O.	2d Best	8 00

MAPLE PRODUCTS.

Owner's Name and Postoffice.	Name of Article.	Amount.
F. I. Bartholomew, Middlefield, O.	Best Gallon Maple Syrup.	$3 00
Lyman Strong, Huntsburg, O.	2d Best	2 00
Lyman Strong, Huntsburg, O.	Best Three Bricks Maple Sugar.	3 00
F. I. Bartholomew, Middlefield, O.	2d Best	2 00
F. I. Bartholomew, Middlefield, O.	Best Design in Maple Sugar	2 00
Lyman Strong, Huntsburg, O.	2d Best	1 00
Lyman Strong, Huntsburg, O.	Best Five Pounds Grained Maple Sugar. . . .	3 00
F. I. Bartholomew, Middlefield, O.	2d Best	2 00
Lyman Strong, Huntsburg, O.	Best Display Maple Cream.	3 00
F. I. Bartholomew, Middlefield, O.	2d Best	2 00
F. I. Bartholomew, Middlefield, O.	Best, Largest and Most Attractive Display Maple Products, One County.	15 00
Leavitt & Hodge, Mechanicsburg, O.	2d Best	10 00

SEVENTH DEPARTMENT—HORTICULTURAL PRODUCTS.

J. L. CARPENTER, Member in Charge.

Owner's Name and Postoffice.	Name of Article.	Amount.
	Summer, Fall and Winter Apples.	
E. G. Cox, Rockwood, O.	Best Three Varieties Summer for Market	$3 00
W. T. Cox, Rockwood, O.	2d Best	1 00
E. G. Cox, Rockwood, O.	Best Three Varieties Fall for Market	3 00
W. T. Cox, Rockwood, O.	2d Best	1 00
E. G. Cox, Rockwood, O.	Best Six Varieties Winter for Market	5 00
W. T. Cox, Rockwood, O.	2d Best	3 00
E. G. Cox, Rockwood, O.	Best Collection Twelve Varieties Summer Fall and Winter for Market	8 00
W. T. Cox, Rockwood, O.	2d Best	5 00
W. T. Cox, Rockwood, O.	Best One Variety Summer Dessert	2 00
E. G. Cox, Rockwood, O.	2d Best	1 00
W. T. Cox, Rockwood, O.	Best One Variety Fall Dessert	2 00
E. G. Cox, Rockwood, O.	2d Best	1 00
W. T. Cox, Rockwood, O.	Best One Variety Winter Dessert	2 00
James E. Carpenter, Republic, O.	2d Best	1 00
E. G. Cox, Rockwood, O.	Best Collection Six Varieties Summer, Fall and Winter Dessert and Culinary	6 00
W. T. Cox, Rockwood, O.	2d Best	3 00
E. G. Cox, Rockwood, O.	Best One Variety Fall, Size and Beauty to Rule	2 00
W. T. Cox, Rockwood, O.	2d Best	1 00
E. G. Cox, Rockwood, O.	Best One Variety Winter, Size and Beauty to Rule	2 00
E. G. Stockman, Prospect, O.	2d Best	1 00
W. T. Cox, Rockwood, O.	Best Collection Six Varieties, Summer, Fall and Winter, Size and Beauty to Rule	6 00
E. G. Cox, Rockwood, O.	2d Best	3 00
E. G. Cox, Rockwood, O.	Best Display Twenty-five Varieties Summer, Fall and Winter, Dessert, Culinary and Market Qualities Equally Considered.	20 00
W. T. Cox, Rockwood, O.	2d Best	10 00
	Plate Apples—Summer and Fall.	
E. G. Stockman, Prospect, O.	Best Plate Alexander	1 50
O. C. Stockman, Prospect, O.	2d Best	75
E. G. Cox, Rockwood, O.	Best Plate Benoni	1 50
W. T. Cox, Rockwood, O.	2d Best	75
E. G. Stockman, Prospect, O.	Best Plate Cayuga Red Streak	1 50
W. H. West, Chillicothe, O.	2d Best	75
W. T. Cox, Rockwood, O.	Best Plate Chenango Strawberry	1 50
E. G. Cox, Rockwood, O.	2d Best	75
E. G. Stockman, Prospect, O.	Best Plate Duchess of Oldenburg	1 50
F. S. Johnson, Port Clinton, O.	2d Best	75
W. T. Cox, Rockwood, O.	Best Plate Fall Pippin	1 50
E. G. Cox, Rockwood, O.	2d Best	75
C. W. Counter, Toledo, O.	Best Plate Fannie	1 50
W. W. Farnsworth, Waterville, O.	2d Best	75
Cary W. Montgomery, Newark, O.	Best Plate Gravenstein	1 50
R. G. Johnson, Gypsum, O.	2d Best	75
C. W. Counter, Toledo, O.	Best Plate Jeffries	1 50
E. G. Stockman, Prospect, O.	2d Best	75
E. G. Cox, Rockwood, O.	Best Plate Lowell	1 50
W. T. Cox, Rockwood, O.	2d Best	75
George Diegritz, Madisonville, O., Sta. M	Best Plate Maiden's Blush	1 50
W. H. West, Chillicothe, O.	2d Best	75
J. C. Vergon, Delaware, O.	Best Plate Ohio Nonpareil	1 50
W. W. Farnsworth, Waterville, O.	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate Porter	1 50
W. H. West, Chillicothe, O.	2d Best	75
E. G. Cox, Rockwood, O.	Best Plate Red Astrachan	1 50
T. S. Johnson, Port Clinton, O.	2d Best	75
W. T. Cox, Rockwood, O.	Best Plate St. Lawrence	1 55
E. G. Cox, Rockwood, O.	2d Best	70
E. G. Stockman, Prospect, O.	Best Plate Summer Queen	1 50
O. C. Stockman, Prospect, O.	2d Best	75

HORTICULTURAL PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article.	Amount.
	Plate Apples—Summer and Fall.	
James E. Carpenter, Republic, O.	Best Plate Sweet Bough	$1 50
M. J. Persing, Clyde, O.	2d Best	75
W. T. Cox, Rockwood, O.	Best Plate Wealthy	1 50
E. G. Cox, Rockwood, O.	2d Best	75
E. D. Carpenter, Republic, O.	Best Plate Yellow Transparent	1 50
W. T. Cox, Rockwood, O.	2d Best	75
W. T. Cox, Rockwood, O.	Best New Seedling	1 50
	Plate Apples—Winter.	
W. H. West, Chillicothe, O.	Best Plate Bailey's Sweet	1 50
J. C. Vergon, Delaware, O.	2d Best	75
T. S. Johnson, Port Clinton, O.	Best Plate Baltimore	1 50
R. G. Johnson, Gypsum, O.	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate Banana	1 50
C. W. Counter, Toledo, O.	2d Best	75
E. G. Cox, Rockwood, O.	Best Plate Baldwin	1 50
W. W. Farnsworth, Waterville, O.	2d Best	75
E. G. Cox, Rockwood, O.	Best Plate Belleflower Yellow	1 50
M. I. Shively, Chillicothe, O.	2d Best	75
R. G. Johnson, Gypsum, O.	Best Plate Belmont	1 50
T. S. Johnson, Port Clinton, O.	2d Best	75
W. T. Cox, Rockwood, O.	Best Plate Ben Davis	1 50
H. & W. Kiefaber, Chillicothe, O., R. R. 3	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate Dominie	1 50
T. S. Johnson, Port Clinton, O.	2d Best	75
E. G. Cox, Rockwood, O.	Best Plate Fallawater	1 50
R. G. Johnson, Gypsum, O.	2d Best	75
J. C. Vergon, Delaware, O.	Best Plate Fameuse	1 50
W. W. Farnsworth, Waterville, O.	2d Best	75
C. W. Counter, Toledo, O.	Best Plate Greenville	1 50
W. W. Farnsworth, Waterville, O.	2d Best	75
W. T. Cox, Rockwood, O.	Best Plate Grimes' Golden	1 50
E. G. Cox, Rockwood, O.	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate Hendrick's Sweet	1 50
C. W. Counter, Toledo, O.	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate Hubbardston	1 50
R. G. Johnson, Gypsum, O.	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate Jonathan	1 50
W. H. West, Chillicothe, O.	2d Best	75
T. S. Johnson, Port Clinton, O.	Best Plate King (Tompkins Co.)	1 50
M. J Persing, Clyde, O.	2d Best	75
Harrison Bookwalter, Hallsville, O.	Best Plate Limber Twig	1 50
H. & W. Kiefaber, Chillicothe, O.	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate McIntosh	1 50
C. W. Counter, Toledo, O.	2d Best	75
J. C. Vergon, Delaware, O.	Best Plate Minkler	1 50
O. C. Stockman, Prospect, O.	2d Best	75
R. G. Johnson, Gypsum, O.	Best Plate Northern Spy	1 50
T. S. Johnson, Port Clinton, O.	2d Best	75
H. & W. Kiefaber, Chillicothe, O.	Best Plate Paradise Winter Sweet	1 50
W. H. West, Chillicothe, O.	2d Best	75
Harrison Bookwalter, Hallsville, O.	Best Plate Peck's Pleasant	1 50
J. C. Vergon, Delaware, O.	2d Best	75
E. G. Stockman, Prospect, O.	Best Plate Pewaukee	1 50
M. I. Shively, Chillicothe, O.	2d Best	75
C. W. Counter, Toledo, O.	Best Plate Rambo	1 50
W. T. Cox Rockwood, O.	2d Best	75
E. G. Cox, Rockwood, O.	Best Plate Roule's Janet	1 50
W. T. Cox, Rockwood, O.	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate Red Canada	1 50
C. W. Counter, Toledo, O.	2d Best	75
R. G. Johnson, Gypsum, O.	Best Plate Rhode Island Greening	1 50
C. W. Counter, Toledo O.	2d Best	75
W. T. Cox, Rockwood, O.	Best Plate Rome Beauty	1 50
E. G. Cox, Rockwood, O.	2d Best	75
W. T. Cox, Rockwood, O.	Best Plate Roxbury Russet	1 50
E. G. Cox, Rockwood, O.	2d Best	75
T. S. Johnson, Port Clinton, O.	Best Plate Seek-no-Farther	1 50
W. T. Cox, Rockwood, O.	2d Best	75
M. I. Shively, Chillicothe, O.	Best Plate Smith's Cider	1 50
E. G. Cox, Rockwood, O.	2d Best	75
E. G. Stockman, Prospect, O.	Best Plate Smoke House	1 50
W. W. Farnsworth, Waterville, O.	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate Stark	1 50
E. G. Cox, Rockwood, O.	2d Best	75
C. W. Counter, Toledo, O.	Best Plate Sutton Beauty	1 50
W. W. Farnsworth, Waterville, O.	2d Best	75
W. W. Farnsworth, Waterville, O.	Best Plate Talman Sweet	1 50
J. B. Stewart, Thornville, O., R. R. 5	2d Best	75

HORTICULTURAL PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article.	Amount.
	Plate Apples—Winter.	
E. G. Cox, Rockwood, O.	Best Plate Wagener	$1 50
W. T. Cox, Rockwood, O.	2d Best	75
R. G. Johnson, Gypsum, O.	Best Plate White Pippin	1 50
T. S. Johnson, Port Clinton, O.	2d Best	75
George Diegritz, Madisonville, O.	Best Plate Willow Twig	1 50
M. I. Shively, Chillicothe, O.	2d Best	75
E. G. Cox, Rockwood, O.	Best Plate Wine Sap	1 50
W. T. Cox, Rockwood, O.	2d Best	75
E. G. Stockman, Prospect, O.	Best Plate Wolf River	1 50
O. C. Stockman, Prospect, O.	2d Best	75
E. G. Cox, Rockwood, O.	Best Plate York Imperial	1 50
W. T. Cox, Rockwood, O.	2d Best	75
W. T. Cox, Rockwood, O.	Best Plate New Seedling	1 50
E. G. Cox, Rockwood, O.	2d Best	75
	Crab Apples.	
O. C. Stockman, Prospect, O.	Best Plate Quaker Beauty	1 50
E. G. Stockman, Prospect, O.	2d Best	75
M. I. Shively, Chillicothe, O.	Best Plate Hyslop	1 50
E G. Stockman, Prospect, O.	2d Best	75
E. G. Stockman, Prospect, O.	Best Plate Transcendant	1 50
M. I. Shively, Chillicothe, O.	2d Best	75
E. G. Stockman, Prospect, O.	Best Plate Whitney's No. 20	1 50
O. C. Stockman, Prospect, O.	2d Best	75
E. G. Stockman, Prospect, O.	Best Display Six Varieties	3 00
O. C. Stockman, Prospect, O.	2d Best	1 50
	Peaches.	
M. I. Shively, Chillicothe, O.	Best Five Varieties, Dessert and Culinary Qualities Considered	4 00
T. S. Johnson, Port Clinton, O.	2d Best	2 00
M. I. Shively, Chillicothe, O.	Best Five Varieties, Market Qualities	4 00
H. L. Persing, Clyde, O.	2d Best	2 00
W. W. Farnsworth, Waterville, O.	Best Collection Eight Varieties, Dessert, Culinary and Market Qualities Considered	5 00
C. W. Counter, Toledo, O.	2d Best	3 00
C. W. Counter, Toledo, O.	Best Collection Twelve Varieties, Dessert, Culinary and Market Qualities Considered	8 00
T. S. Johnson, Port Clinton, O.	2d Best	5 00
M. I. Shively, Chillicothe, O.	Best Plate Beer's Smock	2 00
E. G. Cox, Rockwood, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Briner	2 00
T. S. Johnson, Port Clinton, O.	2d Best	1 00
T. S. Johnson, Port Clinton, O.	Best Plate Chair's Choice	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
H. Burkholder, Clyde, O.	Best Plate Carmen	2 00
James E. Carpenter, Republic, O.	2d Best	1 00
M. I. Shively, Chillicothe, O.	Best Plate Champion	2 00
C. W. Counter, Toledo, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Captain Ede	2 00
C. W. Counter, Toledo, O.	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate Crawford's Early	2 00
W. W. Farnsworth, Waterville, O.	2d Best	1 00
James E. Carpenter, Republic, O.	Best Plate Crawford's Late	2 00
M. I. Shively, Chillicothe, O.	2d Best	1 00
Cary W. Montgomery, Newark, O., R. R. 9	Best Plate Crosby	2 00
H. L. Persing, Clyde, O.	2d Best	1 00
E. G. Cox, Rockwood, O.	Best Plate Diamond	2 00
M. I. Shively, Chillicothe, O.	2d Best	1 00
J. A. Stokes, Fremont, O.	Best Plate Early Rivers	2 00
M. I. Shively, Chillicothe, O.	Best Plate Elberta	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate Engel's Mammoth	2 00
W. W. Farnsworth, Waterville, O.	Best Plate Foster	2 00
T. S. Johnson, Port Clinton, O.	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate Fitzgerald	2 00
W. W. Farnsworth, Waterville, O.	2d Best	1 00
M. I. Shively, Chillicothe, O.	Best Plate Golden Drop	2 00
R. G. Johnson, Gypsum, O.	Best Plate Hill's Chili	2 00
T. S. Johnson, Port Clinton, O.	2d Best	1 00
W. W Farnsworth, Waterville, O.	Best Plate Kalamazoo	2 00
C. W. Counter, Toledo, O.	2d Best	1 00
T. S. Johnson, Port Clinton, O.	Best Plate Lemon Free	2 00
Cary W Montgomery, Newark, O.	2d Best	1 00
M. L. Petticord, Republic, O.	Best Plate Mountain Rose	2 00
W. W. Farnsworth, Waterville,O.	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate New Prolific	2 00
W. W. Farnsworth, Waterville, O.	2d Best	1 00

HORTICULTURAL PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Artice.	Amount.
	Peaches.	
E D. Carpenter, Republic O.	Best Plate Old Mixon Free	$2 00
R G. Johnson, Gypsum, O.	2d Best	1 00
M. I. Shively, Chillcothe, O.	Best Plate Smock Free	2 00
W. H. West, Chillicothe, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Stevens	2 00
C. W. Counter, Toledo, O.	2d Best	1 00
Cary W. Montgomery, Newark, O.	Best Plate Stump	2 00
E. D. Carpenter, Republic, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Wheatland	2 00
T. S. Johnson, Port Cinton, O.	2d Best	1 00
M. I. Shively, Chilicothe O.	Best Plate New Seedling	2 00
W. H. West, Chillicothe, O.	2d Best	1 00
	Quinces.	
Harrison Bookwalter, Hallsville, O.	Best Plate Meech	2 00
Emmet V. Rhoades, St. Paris, O.	2d Best	1 00
Harrison Bookwalter, Hallsville, O.	Best Plate Rea's Mammoth	2 00
Emmet V. Rhoades, St. Paris, O.	2d Best	1 00
W. T. Cox, Rockwood, O.	Best Plate Orange	2 00
Harrison Bookwalter, Hallsville, O.	2d Best	1 00
W. T. Cox, Rockwood, O.	Best Peck of Quinces	2 00
Harrison Bookwalter, Hallsville, O.	2d Best	1 00
	Plums.	
R. G. Johnson, Gypsum, O.	Best Five Varieties European	4 00
E. G. Cox, Rockwood, O.	2d Best	2 00
W. T. Cox, Rockwood, O.	Best Five Varieties, Dessert and Culinary Qualities Considered	4 00
R. G. Johnson, Gypsum, O.	2d Best	2 00
H. Burkholder, Clyde, O.	Best Five Varieties, Market Qualities Considered	4 00
W. T. Cox, Rockwood O.	2d Best	2 00
E. G. Cox, Rockwood, O.	BestCollection Ten Varieties, Dessert, Culinary and Market Qualities Considered	6 00
R. G. Johnson, Gypsum, O.	2d Best	4 00
H. Burkholder, Clyde, O.	Best Plate Abundance	2 00
E. G. Cox, Rockwood, O.	Best Plate Arch Duke	2 00
E. D. Carpenter, Republic, O.	Best Plate Bradshaw	2 00
H. Burkholder, Clyde, O.	2d Best	1 00
James E. Carpenter, Republic, O.	Best Plate Burbank	2 00
H. L. Persing, Clyde, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Coe's Golden Drop	2 00
R. G. Johnson, Gypsum, O.	Best Plate Duane's Purple	2 00
E. G. Cox, Rockwood, O.	Best Plate Fellemburg	2 00
W. W. Farnsworth, Waterville, O.	Best P ate French Damson	2 00
C. W. Counter, Toledo O.	2d Best	1 00
E. G. Cox, Rockwood, O.	Best Plate Grand Duke	2 00
C. W. Counter, Toledo, O.	2d Best	1 00
E. G. Cox, Rockwood, O.	Best Plate Guii	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
E. G. Stockman, Prospect, O.	Best Plate German Prune	2 00
T. S. Johnson, Port Clinton, O.	Best Plate Hale	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
W. T. Cox, Rockwood, O.	Best Plate Imperial Gage	2 00
E. G. Cox, Rockwood, O.	2d Best	1 00
E. D. Carpenter, Republic, O.	Best Plate Lombard	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
C. W. Counter Toledo, O.	Best Plate Monarch	2 00
E. G. Cox, Rockwood, O.	Best Plate Moore's Arctic	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Pond's Seedling	2 00
E. G. Cox, Rockwood, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Reine Claude	2 00
E. G. Cox, Rockwood, O.	2d Best	1 00
James E. Carpenter, Republic, O.	Best Plate Shippers' Pride	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
W. H. West, Chillicothe, O.	Best Plate Shropshire	2 00
James E. Carpenter, Republic, O.	Best Plate Union Purple	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
E. D. Carpenter, Republic, O.	Best Plate Yellow Egg	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
	Pears.	
W. T. Cox Rockwood, O.	Best Three Varieties Summer	3 00
C. W. Counter, Toledo, O.	2d Best	1 50
W. T. Cox, Rockwood, O.	Best Three Varieties Fall	3 00
E. G. Cox, Rockwood, O.	2d Best	1 50

HORTICULTURAL PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article.	Amount.
	Pears.	
W. T. Cox, Rockwood, O.	Best Three Varieties Winter	$3 00
W. W. Farnsworth, Waterville, O.	2d Best	1 50
W. W. Farnsworth, Waterville, O.	Best Three Varities, Dessert and Culinary Qualities Considered	3 00
C. W. Counter, Toledo, O.	2d Best	1 50
R. G. Johnson, Gypsum, O.	Best Three Varieties, Market Qualities Considered	3 00
E. G. Cox, Rockwood, O.	2d Best	1 50
C. W. Counter, Toledo, O.	Best Collection Fifteen Vareties, Dessert, Culinary and Market Qualities Considered.	12 00
W. W. Farnsworth, Waterville, O.	2d Best	8 00
C. W. Counter, Toledo, O.	Best Plate Anjou	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
W. T. Cox, Rockwood, O.	Best Plate Bartlett	2 00
C. W. Counter, Toledo, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Beurre Bosc	2 00
T. S. Johnson, Port Clinton, O	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate Beurre Clairgeau	2 00
W. T. Cox, Rockwood, O.	2d Best	1 00
M. J. Persing, Clyde, O.	Best Plate Clapp's Favorite	2 00
W. W. Farnsworth, Waterville, O.	Best Plate Doyeune Bousoc.	2 00
C. W. Counter, Toledo, O.	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate Duchess	2 00
James E. Carpenter, Republic, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Flemish Beauty	2 00
T. S. Johnson, Port Clinton, O.	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate Frederick Clapp	2 00
W. W. Farnsworth, Waterville, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Howell	2 00
T. S. Johnson, Port Clinton, O.	2d Best	1 00
E. G. Cox, Rockwood, O.	Best Plate Keiffer	2 00
W. T. Cox, Rockwood, O.	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate Kirtland	2 00
W. W. Farnsworth, Waterville, O.	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate Lawrence	2 00
W. W. Farnsworth, Waterville, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Louise Bonne	2 00
T. S. Johnson, Port Clinton, O.	2d Best	1 00
E. G. Cox, Rockwood, O.	Best Plate Seckel	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
T. S. Johnson, Port Clinton, O.	Best Plate Sheldon	2 00
C. W. Counter, Toledo, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Vermont Beauty	2 00
T. S. Johnson, Port Clinton, O.	2d Best	1 00
C. W. Counter, Toledo, O.	Best Plate Winter Nelis.	2 00
W. W. Farnsworth, Waterville, O.	2d Best	1 00
	Grapes.	
R. G. Johnson, Gypsum, O.	Best Six Varieties, Table Qualities Considered	5 00
Cary W. Montgomery, Newark, O.	2d Best	3 00
Cary W. Montgomery, Newark, O.	Best Six Varieties, Market Qualities Considered	5 00
R. G. Johnson, Gypsum, O.	2d Best	3 00
Cary W. Montgomery, Newark, O.	Best Collection Ten Varieties	8 00
W. H. West, Chillicothe, O.	2d Best	4 00
W. W. Farnsworth, Waterville, O.	Best Collection Twenty Varieties	12 00
R. G. Johnson, Gypsum, O.	2d Best	8 00
W. H. West, Chillicothe, O.	Best Plate Agawam	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
Cary W. Montgomery, Newark, O.	Best Plate Brighton	2 00
James E. Carpenter, Republic, O.	2d Best	1 00
W. H. West, Chillicothe, O.	Best Plate Campbell's Early	2 00
W. H. West, Chillicothe, O.	Best Plate Catawba	2 00
H. L. Persing, Clyde, O.	Best Plate Concord	2 00
W. H. West, Chillicothe, O.	2d Best	1 00
Cary W. Montgomery, Newark, O.	Best Plate Delaware	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
James E. Carpenter, Republic, O.	Best Plate Eaton	2 00
W. H. West, Chillicothe, O.	Best Plate Empire State	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
Cary W. Montgomery, Newark, O.	Best Plate Green Mountain	2 00
H. L. Persing, Clyde, O.	2d Best	1 00
W. H. West, Chillicothe, O.	Best Plate Ives	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
W. H. West, Chillicothe, O.	Best Plate Lady Washington	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00
Cary W, Montgomery, Newark, O.	Best Plate Lindley	2 00
R. G. Johnson, Gypsum, O.	2d Best	1 00

HORTICULTURAL PRODUCTS—Continued.

Owner's Name and Postoffice.	Name of Article.	Amount.
	Grapes.	
H. L. Persing, Clyde, O.	Best Plate Moore's Diamond	$2 00
E. D. Carpenter, Republic, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Moore's Early	2 00
Cary W. Montgomery, Newark, O.	Best Plate Niagara	2 00
E. D. Carpenter, Republic, O.	2d Best	1 00
W. H. West, Chillicothe, O.	Best Plate Norton's Virginia	2 00
Cary W. Montgomery, Newark, O.	Best Plate Pocklington	2 00
W. H. West, Chillicothe, O.	2d Best	1 00
R. G. Johnson, Gypsum, O.	Best Plate Salem	2 00
Cary W. Montgomery, Newark, O.	2d Best	1 00
W. H. West, Chillicothe, O.	Best Plate Wilder	2 00
Cary W. Montgomery, Newark, O.	2d Best	1 00
Harrison Bookwalter, Hallsville, O.	Best Plate Woodruf Red	2 00
Cary W. Montgomery, Newark, O.	2d Best	1 00
E. D. Carpenter, Republic, O.	Best Plate Worden	2 00
Cary W. Montgomery, Newark, O.	2d Best	1 00
	County Fruits.	
C. W. Counter, Toledo, O.	Best Exhibit of One Hundred Plates	100 00
W. T. Cox, Rockwood, O.	2d Best	85 00
James E. Carpenter, Republic, O.	3d Best	65 00
T. S. Johnson, Port Clinton, O.	4th Best	50 00
E. G. Stockman, Prospect, O.	5th Best	40 00

HORTICULTURAL PRODUCTS—Concluded.

PLANTS AND FLOWERS.

Owner's Name and Postoffice	Name of Article.	Amount.
	Decorative and Flowering Plants.	
Mrs. E. L. Charles, Columbus, O., 1521 N. High St.	Best Collection Palms, Twenty Varieties	$15 00
Miss N. E. Charles, Columbus, O., 605 N. High St.	2d Best	8 00
Mrs. E. L. Charles, Columbus, O.	Best Single Specimen Palm	5 00
Miss N. E. Charles, Columbus, O.	2d Best	3 00
Mrs E. L. Charles, Columbus, O.	Best Collection Ferns and Lycopodium	10 00
Miss N. E. Charles, Columbus, O.	2d Best	5 00
Mrs. E. L. Charles, Columbus, O.	Best Collection Variegated Foliage Plants	10 00
Mrs. A. T. Warren, Springfield, O., R. R. 9	2d Best	5 00
Mrs. E. L. Charles, Columbus, O.	Best Stove and Greenhouse Plants	20 00
Mrs. A. T. Warren, Springfield, O.	2d Best	10 00
T. H. Kennedy, Columbus, O , 394 W. 3rd Ave.	Best Collection Begonias	8 00
Mrs. E. L. Charles, Columbus, O.	2d Best	4 00
Mrs. E. L. Charles, Columbus, O.	Best Collection Cannas	10 00
Mrs. A. T. Warren, Springfield, O.	2d Best	5 00
Mrs. E. L. Charles, Columbus, O.	Best Collection Geraniums	8 00
T. H. Kennedy, Columbus, O.	2d Best	4 00
Miss N. E. Charles, Columbus, O.	Best Collection Asters	5 00
Mrs. E. L. Charles, Columbus, O.	2d Best	3 00
Miss N. E. Charles, Columbus, O.	Best Single Basket with Plants	3 00
Mrs. E. L. Charles, Columbus, O.	2d Best	2 00
Mrs. E. L. Charles, Columbus, O.	Best Pair Vases with Plants	5 00
Mrs. A. T. Warren, Springfield, O.	Best Pair Hanging Baskets Filled	4 00
Mrs. E. L. Charles, Columbus, O.	2d Best	2 00
Mrs. E. L. Charles, Columbus, O.	Best Porch Box Filled with Plants	5 00
Miss N. E. Charles, Columbus, O.	2d Best	3 00
Mrs. E. L. Charles, Columbus, O.	Best Specimen Rubber Plant	3 00
Miss N. E. Charles, Columbus, O.	2d Best	2 00
Mrs. E. L. Charles, Columbus, O.	Best Specimen Asparagus Sprengeri or Plumosus	3 00
Mrs. A. T. Warren, Springfield, O.	2d Best	2 00
	Cut Flowers and Floral Designs.	
Mrs. E. L. Charles, Columbus, O.	Best Pair Bouquets, Any Style	10 00
Miss N. E. Charles, Columbus, O.	2d Best	5 00
Mrs. E. L. Charles, Columbus, O.	Best Dining-Table Vase, 24 inches	10 00
Miss N. E. Charles, Columbus, O.	2d Best	5 00
Mrs. E. L. Charles, Columbus, O.	Best Dining-Table Vase, 12 inches	5 00
Miss N. E. Charles, Columbus, O.	2d Best	3 00
Mrs. E. L. Charles, Columbus, O.	Best Large Festival Design	12 00
Miss N. E. Charles, Columbus, O.	2d Best	6 00
Miss N. E. Charles, Columbus, O.	Best Large Funeral Design	12 00
Mrs. E. L. Charles, Columbus, O.	2d Best	6 00
Mrs. E. L. Charles, Columbus, O.	Best Collection Small Designs	12 00
Miss N. E. Charles, Columbus, O.	2d Best	6 00
Mrs. E. L. Charles, Columbus, O.	Best Display Cut Roses	10 00
Miss N. E. Charles, Columbus, O.	2d Best	5 00
Mrs. E. L. Charles, Columbus, O.	Best Display Cut Gladioli	12 00
Miss N. E. Charles, Columbus, O.	2d Best	6 00
Mrs. A. T. Warren, Springfield, O.	Best Display Cut Dahlias	8 00
Mrs. E. L. Charles, Columbus, O.	2d Best	4 00
Mrs. E. L. Charles, Columbus, O.	Best Display Cut Carnations	8 00
Miss N. E. Charles, Columbus, O.	2d Best	4 00
Mrs. A. T. Warren, Springfield, O.	Best Display Cut Asters	8 00
Mrs. E. L. Charles, Columbus, O.	2d Best	4 00
Miss N. E. Charles, Columbus, O.	Best Display Any Variety Cut Flowers	5 00
Mrs. E. L. Charles, Columbus, O.	2d Best	3 00
Mrs. E. L. Charles, Columbus, O.	Best Display Cut Flowers	15 00
Mrs. A. T. Warren, Springfield, O.	2d Best	10 00

ELEVENTH DEPARTMENT—WOMAN'S WORK.

TEXTILE FABRICS AND DOMESTIC MANUFACTURES

SAMUEL TAYLOR, Member in Charge.

Owner's Name and Address.	Name of Article.	Amount.
	Household Fabrics—Amateur.	
Mrs. W. B. Smith, Columbus, O., 284 E. Long St.	Best Silk Quilt	$3 00
Mrs. R. A. Dale, Columbus, O., 275 14th Ave	2d Best	2 00
Laura B. Callen, Celina, O.	Best Japanese Quilt (Crazy)	3 00
Elizabeth Leigh, Groveport, O.	2d Best	2 00
Maude C. Hinsey, Pekin, Ill.	Best Worsted Quilt	2 00
Mrs. E. Buck, Lockland, O., 215 Arlington Ave.	2d Best	1 00
Mrs. E. Buck, Lockland, O.	Best Log Cabin Quilt	2 00
Mrs. A. D. De Haven, Xenia, O., 28 W. Market St.	2d Best	1 00
Mrs. L. C. Covault, Troy, O.	Best White Quilt	2 00
Mrs. W. A. Hinmeyer, Marion, O., 677 Park St.	2d Best	1 00
Mrs. E. F. Coddington, Columbus, O., 39 W. 11th Ave.	Best Calico Patchwork Quilt	2 00
Mrs. W. A. Hinmeyer, Marion, O.	2d Best	1 00
Mrs. F. M. DeWeise, Chillicothe, O., 195 Caldwell St.	Best Cradle Quilt	2 00
Dorothy Creamer, Columbus, O., 451 Luckhaupt Ave.	2d Best	1 00
Miss Anna Bond, Toledo, O., 216 Prescott	Best Silk Comfort	2 00
Mrs. F. M. De Weise, Chillicothe, O.	2d Best	1 00
Mrs. Effie Cunningham, Newark, O., 10th St.	Best Worsted Comfort	2 00
Mrs. C. L. France, Columbus, O., 150 Hamilton Ave.	2d Best	1 00
Mrs. A. D. De Haven, Xenia, O.	Best Hearth Rug	2 00
L. V. Johnson, Dayton, O., 919 N. Main St.	2d Best	1 00
Mrs. W. A. Hinmeyer, Marion, O.	Best Ten Yards Rag Carpet	3 00
	Knitting—Amateur.	
Maude C. Hinsey, Pekin, Ill.	Best Pair Silk Stockings	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Miss Anna Bond, Toledo, O.	Best Pair Silk Socks	2 00
L. V. Johnson, Dayton, O.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Pair Woolen Stockings	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Pair Woolen Socks	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Miss Anna Bond, Toledo, O.	Best Pair Golf Stockings	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Mrs. L. C. Huckstep, Bowling Green, Mo.	Best Pair Golf Gloves	2 00
Mrs. L. C. Covault, Troy, O.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Pair Silk Mittens	2 00
Mrs. L. C. Huckstep, Bowling Green, Mo.	2d Best	1 00
Mattie Hall, Lexington, Ky., 838 N. High St.	Best Pair Woolen Mittens	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Pair Slippers	2 00
Mrs. C. M. Nichols, Columbus, O., 710 Neil Ave.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Bedspread	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Lady's Skirt	2 00
Mrs. E. Buck, Lockland, O.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Sweater	2 00
Louise H. Ackley, Columbus, O., 59 N. Champion Ave.	2d Best	1 00
Mattie Hall, Lexington, Ky.	Best Afghan, Large	3 00
Maude C. Hinsey, Pekin, Ill.	2d Best	2 00
Mattie Hall, Lexington, Ky.	Best Display Five Pieces	3 00
Maude C. Hinsey, Pekin, Ill.	2d Best	2 00
	Crochet Work—Amateur.	
Maude C. Hinsey, Pekin, Ill.	Best Bedspread	2 00
Mrs. M. J. Thomas, Columbus, O., 1430 Island St.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Skirt	2 00
Mrs. E. Buck, Lockland, O.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Slippers	2 00
Ada Hills, Columbus, O., 937 Penn Ave.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Afghan, Large	2 00
Mattie Hall, Lexington, Ky.	2d Best	1 00
Mrs. A D. De Haven, Xenia, O.	2d Best Scarf	50

WOMAN'S WORK—Continued.

Owner's Name and Address.	Name of Article.	Amount.
	Crochet Work—Amateur.	
Mrs. L. C. Covault, Troy, O.	Best Cape	$1 00
Mrs. W. H. Covault, Troy, O., 620 E. Franklin St.	2d Best	50
Mrs. L. C. Couvalt, Troy, O.	Best Doylie	1 00
Mrs. W. H. Covault, Troy, O	2d Best	50
Maude C. Hinsey, Pekin, Ill.	Best Woolen Lace, One Yard	1 00
Mrs. L. C. Couvalt, Troy, O.	2d Best	50
Mrs. W. H. Covault, Troy, O	Best Linen Lace, One Yard	1 00
Maude C. Hinsey, Pekin, Ill.	2d Best	50
Louise H. Ackley, Columbus, O.	Best Infant's Sacque	1 00
Mrs. L. C. Huckstep, Bowling Green, Mo.	2d Best	50
Lola Hettich, Bowling Green, Mo.	Best Infant's Hood	1 00
Mrs. L. C. Huckstep, Bowling Green, Mo.	2d Best	50
Maude C. Hinsey, Pekin, Ill.	Best Infant's Skirt	1 00
Lola Hettich, Bowling Green, Mo.	2d Best	50
Mattie Hall, Lexington, Ky.	Best Afghan for Child's Cab	1 00
Maude C. Hinsey, Pekin, Ill.	2d Best	50
Grace B. Matson, Ashtabula, O., 36 Henry St.	Best Shawl	1 00
Mrs. L. C. Covault, Troy, O.	2d Best	50
Lola Hettich, Bowling Green, Mo.	Best Display Five Pieces.	3 00
Louise H. Ackley, Columbus, O.	2d Best	2 00
	Hand Needlework—Amateur	
Maude C. Hinsey, Pekin, Ill.	Best Pair Pillow Cases	2 00
Mrs. J. W. Coe, Mt. Gilead, O.	2d Best	1 00
Mrs. C. M. Nichols, Columbus, O.	Best Sheet	2 00
Miss M. Johnson, Dayton, O., 142 S. Jefferson St.	2d Best	1 00
Miss L. P. Warman, Norwood, O., 4819 Pine St.	Best Bedspread	2 00
Grace B. Matson, Ashtabula, O.	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O.	Best Lady's Waist	3 00
Caroline J. Ackley, Columbus, O., 59 N. Champion Ave.	2d Best	2 00
Maude C. Hinsey, Pekin, Ill.	Best Suit Underwear	3 00
Miss L. P. Warman, Norwood, O.	2d Best	2 00
Anna Bond, Toledo, O.	Best Dressing Jacket	3 00
Miss M. Johnson, Dayton, O.	2d Best	2 00
Mrs. Clara Fogle, Mt. Gilead, O.	Best Night Dress	2 00
Mrs. E. M. Trowbridge, Columbus, O., 119 Hamilton Ave.	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O.	Best Short Underskirt	2 00
Mary V. Smucker, Newark, O., 126 N. 3d St.	2d Best	1 00
Mrs. A. D. De Haven, Xenia, Ohio	Best Corset Cover	2 00
Anna Bond, Toledo, O.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	2d Best Infant's Robe and Skirt.	1 00
Maude C. Hinsey, Pekin, Ill.	Best Fancy Apron	2 00
Mrs. Hattie M. Reese, Dayton, O., 24 4th St.	2d Best	1 00
Mrs. E. Buck, Lockland, O.	Best Sofa Pillow	2 00
Mrs. W. H. Thomas, Springfield, O., Box 584	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O.	Best Display Five Pieces	5 00
Miss L. P. Warman, Norwood, O.	2d Best	3 00
	Machine Sewing—Amateur.	
Mary V. Smucker, Newark, O.	Best Lady's Underwear, Three Pieces	2 00
Miss L. P. Warman, Norwood, O.	2d Best	1 00
Miss Anna Bond, Toledo, O.	Best Lady's Dress	2 00
Miss L. P. Warman, Norwood, O.	2d Best	1 00
Nellie B. Sligar, Effingham, Ill.	Best Night Dress	1 00
Anna Bond, Toledo, O.	2d Best	50
Anna Bond, Toledo, O.	Best Dressing Jacket	2 00
Mrs. E. A. Mullen, Marysville, O.	2d Best	1 00
Anna Bond, Toledo, O.	Best Short Underskirt	1 00
Mrs. W. H. Thomas, Springfield, O., Box 584	2d Best	50
Mrs. E. A. Mullen, Marysville, O.	Best Night Shirt	1 00
Miss L. P. Warman, Norwood, O.	2d Best	50
Mrs. E. Buck, Lockland, O.	Best Skirt	1 00
Mrs. A. D. De Haven, Xenia, O.	2d Best	50
Mrs. A. D. De Haven, Xenia, O.	Best Corset Cover	1 00
Miss L. P. Warman, Norwood, O.	2d Best	50
Miss L. P. Warman, Norwood, O.	Best Dress Apron	1 00
Mrs. E. A. Mullen, Marysville, O.	2d Best	50
Anna Bond, Toledo, O.	Best Display Five Pieces	3 00
Miss L. P. Warman, Norwood, O.	2d Best	2 00
	Children's Class.	
Beryl Starrett, Columbus, O., 70 W. Wayne Ave.	Best Outline Embroidery	1 00
Louie Covault, Troy, O.	2d Best	50
Lola H. Burks, Bowling Green, Mo.	Best Silk Embroidery	1 00
Ethel Wilson, Norwood, O., 4921 Oak St.	2d Best	50
Helen Wilson, Dayton, O., 142 S. Jefferson St.	Best Cross-Stitch Embroidery	1 00
Ethel Wilson, Norwood, O.	2d Best	50

WOMAN'S WORK—Continued.

Owner's Name and Address.	Name of Article.	Amount.
	Children's Class.	
Lola H. Burks, Bowling Green, Mo	Best Drawn Work	$1 00
Amelia Covault, Troy, O	2d Best	50
Sarah A. Click, Columbus, O, 239 Miller Ave	Best Plain Sewing	1 00
Lola H. Burks, Bowling Green, Mo	Best Knitting	1 00
Louie Covault, Troy, O	2d Best	50
Amelia Covault, Troy, O	Best Crocheting	1 00
Ethel Wilson, Norwood, O	2d Best	50
Beryl Starrett, Columbus, O	Best Pyrography	1 00
Helen Wilson, Dayton, O	2d Best	50
Louie Covault, Troy, O	Best Water Color	1 00
Helen Wilson, Dayton, O	2d Best	50
Helen Wilson, Dayton, O	Best Pencil Drawing	1 00
Lola H. Burks, Bowling Green, Mo	2d Best	50
	Outline Embroidery—Amateur.	
Grace B. Matson, Ashtabula, O	Best Bedspread	2 00
Mrs. C. M. Nichols, Columbus, O	Best Sheet	1 00
Mattie Hall, Lexington, Ky	Best Centerpiece	1 00
Miss M. Johnson, Dayton, O	2d Best	50
Anna Bond, Toledo, O	Best Lunch Cloth	1 00
L. V. Johnson, Dayton, O	Best Table Cover	1 00
Mattie Hall, Lexington, Ky	2d Best	50
Mattie Hall, Lexington, Ky	Best Couch Pillow	1 00
Mrs. A. D. De Haven, Xenia, O	2d Best	50
Charlotte Harris, Springfield, O., 119 S. Jefferson St	Best Six Doylies	1 00
Mrs. E. Buck, Lockland, O	2d Best	50
Mattie Hall, Lexington, Ky	Best Tray Cloth	1 00
Miss L. P. Warman, Norwood, O	2d Best	50
Mattie Hall, Lexington, Ky	Best Display Five Pieces	3 00
	Cross-Stitch Embroidery Amateur.	
Anna Bond, Toledo, O	Best Afghan, Large	2 00
Maude C. Hinsey, Pekin, Ill	Best Sofa Pillow	2 00
Mrs. E. M. Trowbridge, Columbus, O	2d Best	1 00
Lillian R. State, Springfield, O	Best Handkerchief Case	2 00
Mrs. Effie Cunningham, Newark, O	2d Best	1 00
Mattie Hall, Lexington, Ky	Best Glove Case	2 00
Miss M. Johnson, Dayton, O	2d Best	1 00
Mattie Hall, Lexington, Ky	Best Table Cover	2 00
Mrs. E. Buck, Lockland, O	2d Best	1 00
Mrs. Effie Cunningham, Newark, O	Best Pin Cushion	2 00
Mattie Hall, Lexington, Ky	2d Best	1 00
Mrs. E A. Mullen, Marysville, O	Best Shirt Waist Set	2 00
Maude C. Hinsey, Pekin, Ill	2d Best	1 00
Anna Bond, Toledo, O	Best Display Five Pieces	3 00
Mrs. C. B. Seegar, Columbus, O., 1325 Hunter St	2d Best	2 00
	Hardanger Embroidery.	
Maude C. Hinsey, Pekin, Ill	Best Waist	2 00
Mrs. Chas. Carter, Columbus, O., 56 N. Ohio Ave	2d Best	1 00
Mrs. Chas. Carter, Columbus, O	Best Dresser Cover	2 00
Miss L. P. Warman, Norwood, O	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O	Best Centerpiece	2 00
Mrs. Chas. Carter, Columbus, O	2d Best	1 00
Mrs. Hattie M. Reese, Dayton, O	Best Shirt Waist Set	2 00
Mrs E. A. Mullen, Marysville, O	2d Best	1 00
Maude C. Hinsey, Pekin, Ill	Best Specimen	2 00
Kathryn Krause, Columbus, O., 606 N. 20th St	2d Best	1 00
Mrs. C. M. Nichols, Columbus, O	Best Pair Pillow Cases	2 00
Maude C. Hinsey, Pekin, Ill	2d Best	1 00
Mrs. C. M. Nichols, Columbus, O	Best Top Sheet	2 00
Mary V. Smucker, Newark, O	2d Best	1 00
Maude C. Hinsey, Pekin, Ill	Best Tablecloth	2 00
Mrs. C. M. Nichols, Columbus, O	2d Best	1 00
Maude C. Hinsey, Pekin, Ill	Best Twelve Dinner Napkins	2 00
Mrs. C. M. Nichols, Columbus, O	2d Best	1 00
Maude C. Hinsey, Pekin, Ill	Best Lunch Cloth	2 00
Mrs. Clara Fogle, Mt. Gilead, O	2d Best	1 00
Maude C. Hinsey, Pekin, Ill	Best Centerpiece	2 00
Mrs. Clara Fogle, Mt. Gilead, O	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O	Best Tray Cloth	2 00
Mrs. E. Buck, Lockland, O	2d Best	1 00
Mattie Hall, Lexington, Ky	Best Sideboard Cover	2 00
Maude C. Hinsey, Pekin, Ill	2d Best	1 00
Mrs. C. M. Nichols, Columbus, O	Best Pair Towels	2 00
Mrs. E. Buck, Lockland, O	2d Best	1 00

WOMAN'S WORK—Continued.

Owner's Name and Address.	Name of Article.	Amount.
	Hardanger Embroidery.	
Mattie Hall, Lexington, Ky.	Best Handkerchief	$2 00
Miss L. P. Warman, Norwood, O.	2d Best	1 00
Miss L. P. Warman, Norwood, O.	Best Six Doylies	2 00
Mattie Hall, Lexington, Ky.	2d Best	1 00
Minnie Downey, Newark, O.	Best Initials on Handkerchief	2 00
Mrs. C. M. Nichols, Columbus, O.	2d Best	1 00
Mrs. Hattie M. Reese, Dayton, O.	Best Shirt Waist Set	3 00
Mrs. O. J. Miller, Mt. Gilead, O.	2d Best	2 00
Maude C. Hinsey, Pekin, Ill.	Best Shirt Waist	2 00
Mrs. W. A. Himmeger, Marion, O.	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O.	Best Specimen Mountmellic	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O.	Best Specimen French	2 00
Mattie Hall, Lexington, Ky.	2d Best	1 00
Mrs. L C Covault, Troy, O.	Best Specimen Gittertyl	2 00
Maude C Hinsey, Pekin, Ill.	2d Best	1 00
Mrs J. R. Edwards, Columbus, O., 70 W. Lane Ave.	Best Specimen Maderia	2 00
Mary Goddard, Columbus, O., 1034 Oak St.	2d Best	1 00
Fanny Fearn, Groveport, O.	Best Specimen Danish	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Mary Goddard, Columbus, O.	Best Specimen Eyelet	2 00
Fanny Fearn, Groveport, O.	2d Best	1 00
Grace B. Matson, Ashtabula, O.	Best Skirt	3 00
Mrs. W. W. Conklin, Columbus, O., 934 W. Broad St.	2d Best	2 00
Mrs. A. D. De Haven, Xenia, O.	2d Best Corset Cover	2 00
Mattie Hall, Lexington, Ky.	Best Collar	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Anna Bond, Toledo, O.	Best Baby Bonnet	2 00
Grace B. Matson, Ashtabula, O.	2d Best	1 00
	Drawn Work—Amateur.	
Mrs. B. F Sampson, Columbus, O , 1103 Penn Ave.	Best Lunch Cloth	2 00
Elizabeth Leigh, Groveport, O.	2d Best	1 00
Mrs. J. M. Coe, Mt. Gilead, O.	Best Centerpiece	2 00
Mrs. E. E. Fitch, Celina, O.	2d Best	1 00
Mrs. O. J. Miller, Mt. Gilead, O.	Best Pair Pillow Cases	2 00
Mrs. W. A. Himmeger, Marion, O.	2d Best	1 00
Charlotte Harris, Springfield, O., 119 S. Yellow Springs St	Best Sheet	2 00
Mrs. L. C. Covault, Troy, O.	Best Tray Cloth	2 00
Miss L. P. Warman, Norwood, O.	2d Best	1 00
Miss L. P. Warman, Norwood, O.	Best Dresser Cover	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Mrs. W. Vance Scott, Hopedale, O.	Best Six Napkins	2 00
Almira Schoch, Columbus, O., 1707 Franklin St.	2d Best	1 00
Mrs. L. C. Covault, Troy, O.	Best Six Doylies	2 00
Miss L. P. Warman, Norwood, O.	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O.	Best Pair Towels	2 00
Mary V. Smucker, Newark, O.	2d Best	1 00
Miss M. Johnson, Dayton, O.	Best Specimen Silk	2 00
Miss L. P. Warman, Norwood, O.	2d Best	1 00
Mrs. B. F. Sampson, Columbus, O.	Best Hemstitched Waist	2 00
Mrs. May Low, Westerville, O.	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O.	Best Specimen Hemstitching	2 00
Mrs. L. C. Covault, Troy, O	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Handkerchief	2 00
Lola Hettich, Bowling Green, Mo.	2d Best	1 00
	Silk Embroidery—Amateur.	
Maude C. Hinsey, Pekin, Ill.	Best Lady's Flannel Skirt	2 00
Elizabeth Leigh, Groveport, O.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Infant's Cloak	2 00
Maude C. Hinsey. Pekin, Ill.	Best Infant's Shawl or Blanket	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Anna Bond, Toledo, O.	Best Child's Dress	2 00
Fanny Fearn, Groveport, O.	Best Opera Bag	2 00
Charlotte Harris, Springfield, O , 119 S. Yellow Springs St	2d Best	1 00
Anna Bond, Toledo, O.	Best Monogram	2 00
Maude C. Hinsey, Pekin, Ill.	Best Specimen	2 00
Mrs. E. A. Mullen, Marysville, O.	2d Best	1 00
Anna Bond, Toledo, O.	Best Display Five Pieces	5 00
	Battenburg Lace.	
Miss C. J. Fahrback, Columbus, O., 466 Linen Ave.	Best Curtains	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Centerpiece	2 00
Mrs. Bertha S. Fleming, Hanover, O.	2d Best	1 00
Mrs. J. R. Edwards, Columbus, O.	Best Dresser Cover	2 00
Mary Wolf, Columbus, O., 866 Summit St.	2d Best	1 00

WOMAN'S WORK—Continued.

Owner's Name and Address.	Name of Article.	Amount.
	Battenburg Lace.	
Mrs. Clara Fogle, Mt. Gilead, O	Best Table Cover	$2 00
Mary Wolf, Columbus, O	2d Best	1 00
Lillian R State, Springfield, O	Best Bolero	2 00
Maude C. Hinsey, Pekin, Ill	2d Best	1 00
Mrs. E. E. Fitch, Celina, O	Best Collar	2 00
Jeanette Adams, Yellow Springs, O	2d Best	1 00
Mrs. Bertha S. Fleming, Hanover, O	Best Medallions for Dress	2 00
Maude C. Hinsey, Pekin, Ill	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O	Best Specimen	2 00
Alice Bartlett, Columbus, O., State Hospital	2d Best	1 00
Mrs. Clara Fogle, Mt. Gilead, O	Best Six Doylies	2 00
Mrs. E. E. Fitch, Celina, O	2d Best	1 00
	Point Lace—Amateur.	
Maude C. Hinsey, Pekin, Ill	Best Handkerchief	2 00
Mrs. O. J. Miller, Mt. Gilead, O	2d Best	1 00
Mrs. Bertha S. Fleming, Hanover, O	Best Collar	2 00
Maude C. Hinsey, Pekin, Ill	2d Best	1 00
Mrs. J. M. Coe, Mt. Gilead, O	Best Scarf	2 00
Mrs. O. J. Miller, Mt. Gilead, O	2d Best	1 00
Mrs. Bertha S. Fleming, Hanover, O	Best Dress Garniture	2 00
Mrs. O. J Miller, Mt. Gilead, O	2d Best	1 00
Mrs. O. J. Miller, Mt. Gilead, O	Best Tie Ends	2 00
Mrs. C. M. Nichols, Columbus, O	2d Best	1 00
Mrs. O. J. Miller, Mt. Gilead, O	Best Six Protection Collars	2 00
Mrs. Bertha S. Fleming, Hanover, O	2d Best	1 00
Lillian R. State, Springfield, O	Best Infant's Cap	2 00
Mrs. J. M. Coe, Mt. Gilead, O	2d Best	1 00
Maude C. Hinsey, Pekin, Ill	Best Specimen	2 00
Mrs. Bertha S. Fleming, Hanover, O	2d Best	1 00
Mrs. O. J. Miller, Mt. Gilead, O	Best Yoke	2 00
Anna Bond, Toledo, O	2d Best	1 00
Mrs. J. M. Coe, Mt. Gilead, O	Best Specimen Point Applique	2 00
Maude C. Hinsey, Pekin, Ill	2d Best	1 00
	Lace and Tatting—Amateur. Lace.	
Maude C. Hinsey, Pekin, Ill	Best Specimen Marie Antoinette	2 00
Nellie B. Sligar, Effingham, Ill	Best Specimen Reticella	2 00
Elizabeth Leigh, Groveport, O	Best Specimen Duchess	2 00
Maude C. Hinsey, Pekin, Ill	2d Best	1 00
Anna Bond, Toledo, O	Best Specimen Teneriffe	2 00
Miss L. P. Warman, Norwood, O	2d Best	1 00
	Tatting.	
Mattie Hall, Lexington, Ky	Best Handkerchief	2 00
Mrs. L. C. Huckstep, Bowling Green, Mo	2d Best	1 00
Mrs. W. H. Covault, Troy, O	Best Tie Ends	2 00
Anna Bond, Toledo, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O., R. R. 3	Best Collar	2 00
Mrs. L. C. Covault, Troy, O	2d Best	1 00
Maude C. Hinsey, Pekin, Ill	Best Darned Tulle Lace	2 00
Mrs. Clara Fogle, Mt. Gilead, O	2d Best	1 00
Miss L. P. Warman, Norwood, O	Best Darned Tulle Pillow	2 00
Anna Bond, Toledo, O	2d Best	1 00
	Fancy Work—Amateur.	
Maude C. Hinsey, Pekin, Ill	Best Huckaback Centerpiece	2 00
Mrs. W. H. Covault, Troy, O	2d Best	1 00
Grace B. Matson, Ashtabula, O	Best Shirt Waist	2 00
Miss L. P. Warman, Norwood, O	2d Best	1 00
Mattie Hall, Lexington, Ky	Best Three Protection Collars	2 00
Mrs. Jennie S. Gillett, Columbus, O., 980 E. Long St	2d Best	1 00
Anna Bond, Toledo, O	Best Shirt Waist Set	2 00
Mattie Hall, Lexington, Ky	Best Three Doylies	2 00
Charlotte Harris, Springfield, O	2d Best	1 00
Carrie F. Mosteller, Newark, O., 105 E. Church St	Best Display Basketry	3 00
Mrs. E. M. Trowbridge, Columbus, O	Best Couch Pillow (Most Sensible)	2 00
Mrs. W. H. Thomas, Springfield, O	2d Best	1 00
Carrie F. Mosteller, Newark, O	Best Magazine Cover	2 00
Eva B. Mosteller, Newark, O., 105 E. Church St.	2d Best	1 00
Mattie Hall, Lexington, Ky	Best Handkerchief Case	2 00
Lillian R. State, Springfield, O	2d Best	1 00
Eva B. Mosteller, Newark, O	Best Glove Case	2 00
Mattie Hall, Lexington, Ky	2d Best	1 00

WOMAN'S WORK—Continued.

Owner's Name and Address.	Name of Article.	Amount.
	Fancy Work—Amateur.	
Mrs. Hattie M. Reese, Dayton, O.	Best Fancy Work Bag	$2 00
Mrs. W. A. Himmeger, Marion, O	2d Best	1 00
Lillian R. State, Springfield, O.	Best Party Bag	2 00
Hester C. Harris, Springfield, O	2d Best	1 00
Mrs. L. P. Hudson, Columbus, O., 210 W. 9th Ave	Best Laundry Bag	2 00
Mrs. Hattie M. Reese, Dayton, O.	2d Best	1 00
Mrs. Hattie M. Reese, Dayton, O	Best Shopping Bag	2 00
Carrie F. Mosteller, Newark, O.	2d Best	1 00
Eva B. Mosteller, Newark, O	Best Book Cover	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Mrs. E. M. Trowbridge, Columbus, O., 119 Hamilton Ave.	Best Sofa Pillow	2 00
Mrs. Caroline Ackley, Columbus, O., 59 N. Champion Ave	2d Best	1 00
Anna Bond, Toledo, O.	Best Couch Pillow, Roman Stripe	2 00
Mrs. C. M. Nichols, Columbus, O	Best Pincushion	2 00
Mrs. A. D. De Haven, Xenia, O	2d Best	1 00
Lilian R. State, Springfield, O.	Best Opera Bag	2 00
Mrs. A. D. DeHaven, Xenia, O	2d Best	1 00
Mrs. E. M. Trowbridge, Columbus, O	Best Scrap Basket	2 00
Charlotte Harris, Springfield, O	2d Best	1 00
Caroline J. Ackley, Columbus, O	Best Two Reticules	2 00
Louise H. Ackley, Columbus, O	2d Best	1 00
Miss M. Johnson, Dayton, O	Best Centerpiece, Blue and White	2 00
Jeanette Adams, Yellow Springs, O	2d Best	1 00
Mattie Hall, Lexington, Ky	Best Specimen Carnation Cord	2 00
L. V. Johnson, Dayton, O	2d Best	1 00
	Delft Embroidery—Amateur	
Nellie B. Sligar, Effingham, Ill.	Best Lunch Cloth	2 00
Maude C. Hinsey, Pekin, Ill	Best Centerpiece	2 00
Mattie Hall, Lexington, Ky	2d Best	1 00
Mattie Hall, Lexington, Ky	Best Six Doylies	2.00
Anna Bond, Toledo, O	2d Best	1 00
Mrs. C. M. Nichols, Columbus, O	Best Pincushion	2 00
Alice Linson, Springfield, O., 119 McCreight Ave	2d Best	1 00
Mrs. A. D. De Haven, Xenia, O	Best Specimen	2 00
Mattie Hall, Lexington, Ky	2d Best	1 00
Nellie B. Sligar, Effingham, Ill	Best Display Five Pieces	3 00
Anna Bond, Toledo, O	2d Best	2 00
	Pyrography—Amateur.	
Nellie B. Sligar, Effingham, Ill	Best Chair	2 00
Anna Bond, Toledo, O	Best Dutch Stand	2 00
Grace B. Matson, Ashtabula, O	Best Handkerchief Box	2 00
Miss L. P. Warman, Norwood, O.	2d Best	1 00
Charlotte Harris, Springfield, O	Best Glove Box	2 00
Carrie F. Mosteller, Newark, O	2d Best	1 00
Carrie F. Mosteller, Newark, O	Best Jewel Chest	2 00
Eva B. Mosteller, Newark, O	2d Best	1 00
Anna Bond, Toledo, O	Best Tankard	2 00
Fanny Jackson, Cedarville, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Plaque	2 00
Charlotte Harris, Springfield, O	2d Best	1 00
J. C. Lynas, Columbus, O., 493 W. 4th Ave	Best Portrait	3 00
J. C. Lynas, Columbus, O	2d Best	2 00
J. C. Lynas, Columbus, O	Best Etched Ideal Head	2 00
Mrs. A. D. De Haven, Xenia, O	2d Best	1 00
Mrs. Frank Burdell, Columbus, O., Lexington Flats	Best Waste Paper Box	2 00
Mrs. W. A. Himmeger, Marion, O	Best Dresser Box	2 00
Carrie F. Mosteller, Newark, O	Best Nut Bowl	2 00
Grace B. Matson, Ashtabula, O	2d Best	1 00
Anna Bond, Toledo, O	Best Pair Ping Pong Bats	2 00
Eva B. Mosteller, Newark, O	Best Card Box	2 00
Anna Bond, Toledo, O.	2d Best	1 00
Charlotte Harris, Springfield, O	Best Picture Frame	2 00
Eva B. Mosteller Newark, O	2d Best	1 00
J. C. Lynas, Columbus, O	Best Panel	2 00
Mrs. W. A. Himmeger, Marion, O	2d Best	1 00
Eva B. Mosteller, Newark, O	Best Opera Bag	2 00
Fanny Jackson, Cedarville, O	2d Best	1 00
Carrie F. Mosteller, Newark, O	Best Pipe Rack	2 00
Paul Frankenburg, Columbus, O., 586 Oakwood Ave	Best Specimen Wood	2 00
J. C. Lynas, Columbus, O	2d Best	1 00
Mrs. Frank Burdell, Columbus, O	Best Specimen Leather	2 00
Charlotte Harris, Springfield, O	2d Best	1 00
Charlotte Harris, Springfield, O	Best Display Five Pieces	5 00
Carrie F. Mosteller, Newark, O	2d Best	3 00

WOMAN'S WORK—Continued.

Owner's Name and Address.	Name of Article.	Amount.
	Decorative Art Work—Amateur.	
Mrs. H. S. Holton, Columbus, O., 844 Oak St.	Best Picture Frame	$2 00
Alice M. Hipple, Delaware, O., 114 N. Franklin St.	2d Best	1 00
Charlotte Harris, Springfield, O.	Best Plaque	2 00
Mrs. Chas. W. Hunter, Springfield, O., R. R. 5	2d Best	1 00
Mrs. H. S. Holton, Columbus, O.	Best Book Rack	2 00
Carrie F. Mosteller, Newark, O.	2d Best	1 00
Mrs. E. M. Trowbridge, Columbus, O.	Best Couch Pillow	2 00
Virginia Wiltberger, Columbus, O., 1897 N. 4th St.	2d Best	1 00
Virginia Wiltberger, Columbus, O.	Best Handkerchief Case or Box	2 00
Eva B. Mosteller, Newark, O.	2d Best	1 00
Carrie F. Mosteller, Newark, O.	Best Glove Case or Box	2 00
Charlotte Harris, Springfield, O.	2d Best	1 00
Eva B. Mosteller, Newark, O.	Best Jewel Case or Chest	2 00
Hester C. Harris, Springfield, O.	2d Best	1 00
Mrs. L. C. Covault, Troy, O.	Best Book Cover	2 00
Mrs. A. D. De Haven, Xenia, O.	2d Best	1 00
Carrie F. Mosteller, Newark, O.	Best Magazine Cover	2 00
Virginia Wiltberger, Columbus, O.	2d Best	1 00
Eva B. Mosteller, Newark, O.	Best Photograph Case	2 00
Miss M. Johnson, Dayton, O.	2d Best	1 00
Anna Bond, Toledo, O.	Best Blotting Pad	2 00
Fanny Jackson, Cedarville, O.	2d Best	1 00
Virginia Wiltberger, Columbus, O.	Best Opera Bag	2 00
Eva B. Mosteller, Newark, O.	2d Best	1 00
Eva B. Mosteller, Newark, O.	Best Shopping Bag	2 00
Fanny Jackson, Cedarville, O.	2d Best	1 00
Mrs. H. S. Holton, Columbus, O.	Best Display Wood Carving	5 00
Hester C. Harris, Springfield, O.	2d Best	3 00
	Art Needlework—Amateur.	
Maude C. Hinsey, Pekin, Ill.	Best Lunch Cloth	3 00
Mattie Hall, Lexington, Ky.	2d Best	2 00
Maude C. Hinsey, Pekin, Ill.	Best Specimen	3 00
Anna Bond, Toledo, O.	2d Best	2 00
Mary V. Smucker, Newark, O.	2d Best Table Cover (in color)	2 00
Mrs. W. W. Conklin, Columbus, O.	Best Centerpiece, 24 inch	3 00
Mattie Hall, Lexington, Ky.	2d Best	2 00
Mrs. L. C. Covault, Troy, O.	Best Dress Garniture in Gittertyl	2 00
Mrs. Hattie M. Reese, Dayton, O.	2d Best	1 00
Mattie Hall, Lexington, Ky.	Best Handkerchief Case	2 00
Mary V. Smucker, Newark, O.	2d Best	1 00
Fanny Jackson, Cedarville, O.	Best Glove Case	2 00
Mattie Hall, Lexington, Ky.	2d Best	1 00
Anna Bond, Toledo, O.	Best Dress Medallions	2 00
Maude C. Hinsey, Pekin, Ill.	Best Tray Cloth	2 00
Mattie Hall, Lexington, Ky.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	Best Sideboard Cover	2 00
Mrs. E. Buck, Lockland, O.	2d Best	1 00
Minnie Downey, Newark, O.	Best Centerpiece (Lace and Embroidery	2 00
Mrs. Ross Bailey, Columbus, O., 479½ N. 20th St.	Best Centerpiece (18 inch)	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Mrs. Effie Cunningham, Newark, O.	Best Table Cover	2 00
Maude C. Hinsey, Pekin, Ill.	2d Best	1 00
Mattie Hall, Lexington, Ky.	Best Six 12-inch Doylies	2 00
Mrs. E. Buck, Lockland, O.	2d Best	1 00
Mattie Hall, Lexington, Ky.	Best Three Cake Doylies	2 00
Mrs. Effie Cunningham, Newark, O.	2d Best	1 00
Mrs. Effie Cunningham, Newark, O.	Best Book Cover	2 00
Charlotte Harris, Springfield, O.	2d Best	1 00
Mrs. Effie Cunningham, Newark, O.	Best Magazine Cover	2 00
Anna Bond, Toledo, O.	2d Best	1 00
Miss L. P. Warman, Norwood, O.	Best Party Bag	2 00
Maude C. Hinsey, Pekin, Ill.	Best Four Doylies (Four Kinds Embroidery)	2 00
Mattie Hall, Lexington, Ky.	2d Best	1 00
Anna Bond, Toledo, O.	Best Specimen Colonial	2 00
Maude C. Hinsey, Pekin, Ill.	Best Specimen Peruvian	2 00
Miss M. Johnson, Dayton, O.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	2d Best Specimen Mountmellick	1 00
Mrs. Effie Cunningham, Newark, O.	Best Sofa Pillow	2 00
Mrs. E. M. Trowbridge, Columbus, O.	2d Best	1 00
Maude C. Hinsey, Pekin, Ill.	2d Best Six Collars	1 00
Elizabeth Leigh, Groveport, O.	Best Stockings	2 00
Jeanette Adams, Yellow Springs, O.	Best Display Art Needlework	10 00
Mrs. W. Vance Scott, Hopedale, O.	2d Best	5 00

WOMAN'S WORK—Continued.

Owner's Name and Address.	Name of Article.	Amount.
	Art Needlework—Professional	
Mrs. Jennie Guthridge, Columbus, O., 878 W. 4th St.	Best Table Set	$7 00
Nellie B. Sligar, Effingham, Ill.	2d Best	5 00
Della J. Finley, Columbus, O., 1472 Oak St.	Best Single Specimen	5 00
Mrs. C. R. Creamer, Columbus, O	2d Best	3 00
Mrs. Jennie Guthridge, Columbus, O.	Best Display Eight Pieces	10 00
Nellie B. Sligar, Effingham, Ill.	2d Best	5 00
	Pyrography—Professional.	
J. A. Snell, Columbus, O., 1408 N. High St.	Best Specimen	7 00
Louise Backer, Columbus, O., R. R., 29 Parsons Ave.	2d Best	5 00
Mrs. E. M. Trowbridge, Columbus, O.	Best Chair	5 00
Nellie B. Sligar, Effingham, Ill.	2d Best	3 00
Louise Backer, Columbus, O.	Best Display	10 00
Mrs. C. W. Groff, Columbus, O., 2680 W. Broad St.	2d Best	5 00
	China Painting—Amateur.	
Mrs. W. H. Thomas, Springfield, O.	Best Chocolate Set	3 00
Anna C. Baird, Columbus, O., 95 Star Ave.	2d Best	1 00
Mrs. W. H. Thomas, Springfield, O.	Best Ice Cream Set.	3 00
Anna Bond, Toledo, O.	Best Fish Set	3 00
Mrs. W. H. Thomas, Springfield, O.	Best Six Small Plates	3 00
Meta Earnest, Columbus, O., 1059 E. Long St.	2d Best	1 00
Aurelia Brown, Columbus, O., 1371 Highland St.	Best Six Large Plates	3 00
Mrs. W. H. Thomas, Springfield, O.	2d Best	1 00
Aurelia Brown, Columbus, O.	Best Six Cups and Saucers	2 00
Mrs. W. H. Thomas, Springfield, O.	2d Best	1 00
Grayce Gutridge, Columbus, O., 686 S. Champion Ave.	Best Six After-Dinner Coffee Cups	2 00
Nellie B. Sligar, Effingham, Ill.	2d Best	1 00
Bessie Mabel Dunn, Columbus, O., 820 Oakwood Ave.	Best Six Egg Cups	2 00
Nellie B. Sligar, Effingham, Ill.	2d Best	1 00
Mrs. W. H. Thomas, Springfield, O.	Best Celery Tray	2 00
Grayce Gutridge, Columbus, O.	2d Best	1 00
Mrs. W. H. Thomas, Springfield, O.	Best Teapot, Sugar and Creamer	2 00
Anna C. Baird, Columbus, O.	2d Best	1 00
Anna C. Baird, Columbus, O.	Best Specimen of Figure	2 00
Jno. O. Davies, Columbus, O., 475 Vermont Place	2d Best	1 00
Helen E. Bright, Columbus, O., 283½ N. High St.	Best Vase	2 00
Meta Earnest, Columbus, O.	2d Best	1 00
Mrs. W. H. Thomas, Springfield, O.	Best Tankard or Claret Pitcher and Mug	2 00
Anna C. Baird, Columbus, O.	2d Best	1 00
Mrs. W. H. Thomas, Springfield, O.	Best Jardiniere	2 00
Mrs. Anna B. Schreiber, Columbus, O., 718 S. Front St.	2d Best	1 00
Grayce Gutridge, Columbus, O.	Best Plaque	2 00
Alice M. Hipple, Delaware, O.	2d Best	1 00
Mrs. W. H. Thomas, Springfield, O.	Best Specimen China Painting	2 00
Meta Earnest, Columbus, O.	2d Best	1 00
Grayce Gutridge, Columbus, O.	Best Specimen Paste Work	2 00
Meta Earnest, Columbus, O.	2d Best	1 00
Meta Earnest, Columbus, O.	Best Sålad Dish	2 00
Mrs. W. H. Thomas, Springfield, O.	2d Best	1 00
Mrs. W. H. Thomas, Springfield, O.	Best Cake Plate	2 00
Aurelia Brown, Columbus, O.	2d Best	1 00
Mrs. W. H. Thomas, Springfield, O.	Best Tray	2 00
Hazel Dolin, Columbus, O., 91 W. 10th Ave.	2d Best	1 00
Mrs. W. H. Thomas, Springfield, O.	Best Display China Painting	7 00
Grayce Gutridge, Columbus, O.	2d Best	4 00
	China Painting—Professional Other than Figure.	
E. Louise Jenkins, Columbus, O., 1377 Forsythe Ave.	Best Lemonade Pitcher	3 00
Lurah C. Davis, Columbus, O., 1143 Oak St.	2d Best	2 00
E. Louise Jenkins, Columbus, O., 1337 Forsythe Ave.	Best Panel	3 00
Mrs. Dr. Emminger, Columbus, O., 880 E. Broad St.	2d Best	2 00
	China Painting—Professional. Other than Figure.	
Mrs. Dr Emminger, Columbus, O.	Best Plaque	$3 00
Lurah C. Davis, Columbus, O.	2d Best	2 00
Mrs. Dr. Emminger, Columbus, O.	Best Table Top	3 00
Lurah C. Davis, Columbus, O.	2d Best.	2 00
Lurah C. Davis, Columbus, O.	Best Conventional Design	3 00
Myra F. Hitchcock, Columbus, O., 380 W. 8th Ave	2d Best	2 00
Lurah C. Davis, Columbus, O.	Best Tankard or Claret Pitcher or Mug	3 00
M. E. Wiltberger, Columbus, O., 1897 N. 4th St.	2d Best	2 00

WOMAN'S WORK—Concluded.

Owner's Name and Address.	Name of Article.	Amount.
	China Painting—Professional. Other than Figure.	
M. E. Wiltberger, Columbus, O	Best Punch Bowl	$3 00
Lurah C. Davis, Columbus, O	2d Best	2 00
E. Louise Jenkins, Columbus, O	Best Vase	3 00
Lurah C. Davis, Columbus, O	2d Best	2 00
E. Louise Jenkins, Columbus, O	Best Six Cups and Saucers	3 00
M. E. Wiltberger, Columbus, O	2d Best	2 00
E. Louise Jenkins, Columbus, O	Best Six Large Plates	3 00
Lurah C. Davis, Columbus, O	2d Best	2 00
Mrs. Dr. Emminger, Columbus, O	Best Six Small Plates	3 00
E. Louise Jenkins, Columbus, O	2d Best	2 00
Mrs. Dr. Emminger, Columbus, O	Best Specimen of Enamel	3 00
Lurah C. Davis, Columbus, O	2d Best	2 00
Lurah C. Davis, Columbus, O	Best Specimen Paste Work	3 00
Mrs. Dr. Emminger, Columbus, O	2d Best	2 00
Lurah C. Davis, Columbus, O	Best Jardiniere	3 00
Mrs. M. E. Augustus, Columbus, O., 383 Abbott Ave	2d Best	2 00
E. Louise Jenkins, Columbus, O	Best Display China Painting	10 00
Lurah C. Davis, Columbus, O	2d Best	5 00
	China Painting—Professional. Figure.	
Florence E. Newcomer, Dayton, O., 15 Crescent St	Best Portrait	3 00
Elizabeth Leigh, Groveport, O	2d Best	2 00
Grace Byrely, Chillicothe, O	Best Figure	3 00
Florence E. Newcomer, Dayton, O	2d Best	2 00
Florence E. Newcomer, Dayton, O	Best Plaque	3 00
E. Louise Jenkins, Columbus, O	2d Best	2 00
E. Louise Jenkins, Columbus, O	Best Panel	3 00
Florence E. Newcomer, Dayton, O	2d Best	2 00
J. C. Lynas, Columbus, O	Best Vase	3 00
Grace Byrely, Chillicothe, O	2d Best	2 00
Lula Earle, Columbus, O., 1143 Oak St	Best Tankard	3 00
Flora Look, Newark, O., 231 N. 4th St	2d Best	2 00
Florence E. Newcomer, Dayton, O	Best Stein	3 00
J. C. Lynas, Columbus, O	2d Best	2 00
Grace Byrely, Chillicothe, O	Best Miniature	3 00
Florence E. Newcomer, Dayton, O	2d Best	2 00
Florence E. Newcomer, Dayton, O	Best Display China Painting	10 00
Mrs. M. E. Augustus, Columbus, O	2d Best	5 00

PRESERVES, PICKLES, ETC.

Owner's Name and Address.	Name of Article.	Amount.
Mrs. M. B. Clutter, Centerburg, O., R. R. 3	Best Canned Tomatoes	$1 00
Grace B. Matson, Ashtabula, O	2d Best	50
Grace B. Matson, Ashtabula, O	Best Canned Blackberries	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Grace B. Matson, Ashtabula, O	Best Canned Raspberries	1 00
Mrs. M. B Clutter, Centerburg, O	2d Best	50
Mrs. Henry Bieber, Delaware, O., R. R. 3	Best Canned Peaches	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Mrs. M B. Clutter, Centerburg, O	Best Canned Pears	1 00
Mrs. W. A. Himmeger, Marion, O	2d Best	50
Mrs. M. B. Clutter, Centerburg, O	Best Canned Apples	1 00
Mrs. Henry Bieber, Delaware, O	2d Best	50
Mrs Henry Bieber, Delaware, O	Best Canned Quinces	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Grace B. Matson, Ashtabula, O	Best Canned Strawberries	1 00
Mrs. Henry Bieber, Delaware, O	2d Best	50
Mrs. W. A. Himmeger Marion, O	Best Canned Cherries	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Mrs. H. E. Stein, Columbus, O., 1041 E. Schiller St	Best Canned Gooseberries	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Mrs. Henry Bieber, Delaware, O	Best Canned Currants	1 00
Grace B. Matson, Ashtabula, O	2d Best	50
Mrs. Henry Bieber, Delaware, O	Best Canned Grapes	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Mrs. Henry Bieber, Delaware, O	Best Canned Plums	1 00
Mrs. H. E. Stein, Columbus, O	2d Best	50
Grace B. Matson, Ashtabula, O	Best Canned Peas	1 00

PRESERVES, PICKLES, ETC.—Continued.

Owner's Name and Address.	Name of Article.	Amount.
Mrs. H. E. Stein, Columbus, O.	Best Canned Beans	$1 00
Mrs. M. B. Clutter, Centerburg, O.	2d Best	50
Mrs. W. A. Himmeger, Marion, O	Best Canned Rhubarb	1 00
Mrs. H. E. Stein, Columbus, O.	2d Best	50
Grace B. Matson, Ashtabula, O.	Best Canned Corn, Ear or Otherwise	1 00
Mrs. Henry Bieber, Delaware, O	Best Blackberry Jelly	1 00
Lida Crickard, Delaware, O.	2d Best	50
Mrs. M. B. Clutter, Centerburg, O	Best Cherry Jelly	1 00
Grace B. Matson, Ashtabula, O	2d Best	50
Mrs. Henry Bieber, Delaware, O	Best Cranberry Jelly	1 00
Grace B. Matson, Ashtabula, O	2d Best	50
Minnie Bieber, Delaware, O,, R. R. 3	Best Grape Jelly	1 00
Mrs. Henry Bieber, Delaware O	2d Best	50
Mrs. V. Argenbright, Columbus, O., 226 Wilber Ave	Best Raspberry Jelly	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Mrs. M. B. Clutter, Centerburg, O	Best Strawberry Jelly	1 00
Grace B Matson, Ashtabula, O	2d Best	50
Mrs. W. B. Smith, Columbus, O	Best Apple Jelly	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Mrs. M. B. Clutter, Centerburg, O	Best Pear Jelly	1 00
Grace B. Matson, Ashtabula, O	2d Best	50
Mrs. W. B. Smith, Columbus, O	Best Crab Apple Jelly	1 00
Mrs. V. Argenbright, Columbus, O	2d Best	50
Mrs. M. B. Clutter, Centerburg, O	Best Currant Jelly	1 00
Mrs. Henry Bieber, Delaware, O	2d Best	50
Lida Crickard, Delaware, O	Best Peach Jelly	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Mrs. Henry Bieber, Delaware, O	Best Quince Jelly	1 00
Minnie Bieber, Delaware O	2d Best	50
Minnie Bieber, Delaware, O	Best Plum Jelly	1 00
Mrs. H. E. Stein, Columbus, O	2d Best	50
Mrs. M. B. Clutter, Centerburg, O	Best Lemon Jelly	1 00
Grace B. Matson, Ashtabula, O	2d Best	50
Mary Stewart, Jacksontown, O	Best Pineapple Jelly	1 00
Lida Crickard, Delaware, O	2d Best	50
Mrs. M. B. Clutter, Centerburg, O	Best Rhubarb Jelly	1 00
Mary Stewart, Jacksontown, O	2d Best	50
Lida Crickard, Delaware, O	Best Gooseberry Jelly	1 00
Mrs. M. B. Clutter, Centerburg. O	2d Best	50
Mrs. Henry Bieber, Delaware, O	Best Preserved Quinces	2 00
Minnie Bieber, Delaware, O	2d Best	1 00
Mrs. Henry Bieber, Delaware, O	Best Preserved Pears	2 00
Minnie Bieber, Delaware, O	2d Best	1 00
Minnie Bieber, Delaware, O	Best Preserved Apples	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Preserved Plums	2 00
Minnie Bieber, Delaware, O	2d Best	1 00
Mrs. Henry Bieber, Delaware, O	Best Preserved Cherries	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Preserved Crab Apples	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Preserved Grapes	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Preserved Srawberries	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Minnie Bieber, Delaware, O	Bes Preserved Blackberries	2 00
Mrs. V. Argenbright. Columbus, O	2d Best	1 00
Mrs. Henry Bieber, Delaware, O	Best Preserved Peaches	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Fanny Fearn, Groveport, O	Bes Preserved Currants	2 00
Albert Pearce, Elyria, O., R. R. 2	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Preserved Gooseberries	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Preserved Melons	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00
Mrs. J. H. Hawkins, Xenia, O., R. R. 3.	Best Preserved Pineapples	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mrs. M. B. Clutter Centerburg, O	Best Preserved Cranberries	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mrs. Henry Bieber, Delaware, O	Best Pickled Cucumbers	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mrs. H. E. Stein Columbus, O	Best Pickled Peaches	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Pickled Pears	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Pickled Tomatoes	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Pickled Melon Mangoes	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00
Grace B. Matson, Ashtabula, O	Best Pickled Pepper Mangoes	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00

PRESERVES, PICKLES, ETC.—Concluded.

Owner's Name and Address.	Name of Article.	Amount.
Mrs. Henry Bieber, Delaware, O	Best Pickled Melons	$2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Pickled Onions	2 00
Mrs. W. A. Himmeger, Marion, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Pickled Gherkins	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Pickled Cauliflower	2 00
Grace B. Matson, Ashtabula, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Mixed Pickles	2 00
Grace B. Matson, Ashtabula, O	2d Best	1 00
Mrs. R. E. Cartzdafner, Columbus, O	Best Tomato Catsup	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Minnie Bieber, Delaware, O	Best Cucumber Catsup	2 00
Grace B. Matson, Ashtabula, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Cold Tomato Catsup	2 00
Minnie Bieber, Delaware, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Chili Sauce	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Chow Chow	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Grace B. Matson, Ashtabula, O	Best Cucumber Relish	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Mrs. Henry Bieber, Delaware, O	Best Peach Butter	2 00
Minnie Bieber, Delaware, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Apple Butter	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Quince Butter	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00
Mrs. Henry Bieber, Delaware, O	Best Plum Butter	2 00
Mrs. J. H. Hawkins, Xenia, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Pear Butter	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mrs. J. H. Hawkins, Xenia, O	Best Grape Butter	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Mrs. Henry Bieber, Delaware, O	Best Peach Marmalade	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Minnie Bieber, Delaware, O	Best Quince Marmalade	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Mrs. V. Argenbright, Columbus, O	Best Crab Apple Marmalade	2 00
Minnie Bieber, Delaware, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Orange Marmalade	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Minnie Bieber, Delaware, O	Best Pear Marmalade	2 00
Mrs. W. A. Himmeger, Marion, O	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Largest and Best Variety Canned Fruit	5 00
Grace B. Matson, Ashtabula, O	2d Largest and Best	3 00
Mrs. M. B. Clutter, Centerburg, O	Largest and Best Variety Pickles	5 00
Grace B. Matson, Ashtabula, O	2d Best	3 00
Mrs. W. A. Himmeger, Marion, O	Largest and Best Variety Jellies	5 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	3 00
Mary Stewart, Jacksontown, O	Largest and Best Variety Preserves	5 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	3 00
Mrs. M. B. Clutter, Centerburg, O	Best Display Butters, 20 varieties	5 00
Mary Stewart, Jacksontown, O	2d Best	3 00
Mary Stewart, Jacksontown, O	Best Display Marmalades, 20 Varieties	5 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	3 00

CEREAL FOODS—Domestic Baking.

Owner's Name and Address.	Name of Article.	Amount.
	Bread.	
Mrs. M. B. Clutter, Centerburg, O	Best Yeast	$2 00
Mrs. G. W. Burton, Columbus, O., 387 E. Broad St	2d Best	1 00
Mrs. G. W. Burton, Columbus, O	Best Salt-Rising	2 00
Mrs. Jennie Cherry, Newark, O., 153 W. Locust	2d Best	1 00
Mrs. M. D. Davis, Westerville, O	Best Corn	2 00
Mrs. Harvey, Columbus, O., 157 Pugh Ave	2d Best	1 00
Mrs. M. B. Clutter, Centerburg, O	Best Rye	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Brown	2 00
Mrs. M. B. Clutter, Centerbrug, O	2d Best	1 00

CEREAL FOODS—Concluded.

Owner's Name and Address.	Name of Article.	Amount.
	Loaf Cakes.	
Mrs. J. H. Hawkins, Xenia, O	Best Black Fruit	$3 00
Mrs. W. A. Himmeger, Marion, O	2d Best	2 00
Mrs. M. B. Clutter, Centerburg, O	Best White Fruit	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mrs. J. H. Hawkins, Xenia, O	Best White	2 00
Mrs. E. P. Wright, Columbus, O., 1144 Mozart Ave	2d Best	1 00
Mrs. W. B. Smith, Columbus, O	Best Marble	2 00
Mrs. J. H. Hawkins, Xenia, O	2d Best	1 00
Mrs. Henry Bieber, Delaware, O	Best Pound	2 00
Mary Stewart, Jacksontown, O	Best Coffee	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00
Mrs. M. D. Davis, Westerville, O	Best Nut	2 00
Minnie Bieber, Delaware, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Angel	2 00
Mrs. R. E. Cartzdafner, Columbus, O	2d Best	1 00
Mrs. Henry Bieber, Delaware, O	Best Sponge	2 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Sunshine	2 00
Minnie Bieber, Delaware, O	2d Best	1 00
	Layer Cakes.	
Mrs. J. H. Hawkins, Xenia, O	Best Chocolate	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mrs. M. D. Davis, Westerville, O	Best Caramel	2 00
Mrs. J. H. Hawkins, Xenia, O	2d Best	1 00
Mrs. D. M. Young, Columbus, O., 850 Oak St	Best Cocoanut	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Almond	2 00
Mary Stewart, Jacksontown, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Devil	2 00
Minnie Bieber, Delaware, O	2d Best	1 00
Mary Stewart, Jacksontown, O	Best Fig	2 00
Mrs. Henry Bieber, Delaware, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Ribbon	2 00
Mrs. J. H. Hawkins, Xenia, O	2d Best	1 00
Mrs. W. B. Smith, Columbus, O	Best Any Other Kind	2 00
Mrs. J. H. Hawkins, Xenia, O	2d Best	1 00
	Miscellaneous.	
Mrs. E. P. Wright, Columbus, O	Best One Dozen Plain Snaps	1 00
Minnie Bieber, Delaware, O	2d Best	50
Mrs. D. M. Young, Columbus, O	Best One Dozen Cookies	1 00
Mrs. M. D. Davis, Westerville, O	2d Best	50
Mrs. M. B. Clutter, Centerburg, O	Best One Dozen Doughnuts	1 00
Mrs. M. B. Clutter, Centerburg, O	Best One Dozen Love Pies	1 00
Mrs. M. D. Davis, Westerville, O	2d Best	50
Mrs. E. P. Wright, Columbus, O	Best One Dozen Ginger Snaps	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
	Confections—Home-Made.	
Minnie Bieber, Delaware, O	Best Pound French Creams	1 00
Mrs. M. B. Clutter, Centerburg, O	2d Best	50
Bertha Young, Columbus, O	Best Pound Fudges	1 00
Mrs. F. I. Bartholomew, Middlefield, O., R. R. 3	Best Pound Maple Balls	1 00
Mary Stewart, Jacksontown, O	2d Best	50
Mrs. M. B. Clutter, Centerburg, O	Best Pound Chocolate Creams	1 00
Minnie Bieber, Delaware, O	2d Best	50
Mrs F. I. Bartholomew, Middlefield, O	Best Pound Nut Candy	1 00
Mrs. M. D. Davis, Westerville, O	2d Best	50
Mrs. D. M. Young, Columbus, O	Best Pound Taffy	1 00
Mrs. M. D. Davis, Westerville, O	2d Best	50
Mary Stewart, Jacksontown, O	Best Pound Candied Lemon or Orange Peel	1 00 1 00
Mrs. M. D. Clutter, Centerburg, O	2d Best	50
Minnie Bieber, Delaware, O	Best Pound Almond Macaroons	1 00
Mrs. M. D. Clutter, Centerburg, O	2d Best	50
Mrs. M. D. Clutter, Centerburg, O	Best Pound Hickory Nut Macaroons	1 00
Minnie Bieber, Delaware, O	2d Best	50

TWELFTH DEPARTMENT—FINE ARTS.

SAMUEL TAYLOR, Member in Charge.

PAINTINGS, DRAWINGS, ETC.

Original Productions—Open to All.

Owner's Name and Address.	Name of Article.	Amount.
	Oil Paintings.	
Alice Schille, Columbus, O., 1166 Bryden Road	Best Portrait	$8 00
W. J. Norris, Columbus, O., Room 605 Union National Bank Bldg	2d Best	4 00
S. Kiefer, Columbus, O., 90 W. Lane Ave	Best Animal Study	8 00
Mrs. T. J. Evans, Cumberland, O	2d Best	4 00
Alice Schille, Columbus, O	Best Full Length Picture	5 00
Mrs. Chas. W. Hunter, Springfield, O., R. R. 5	2d Best	3 00
Mrs. C. F. Palmer, Indianapolis, Ind., 17 W. 27th St	Best Landscape	5 00
Mary Russell, Springfield, O., 203 E Grand Ave	2d Best	3 00
Mrs. Fred Warnecke, Columbus, O., 176 E. Cherry St	Best Fruit Piece	5 00
Neva J. Collins, Columbus, O., 543 Kiefer	2d Best	3 00
Mrs. C. F. Palmer, Indianapolis, Ind	Best Flower Piece	5 00
A. F. Lundberg, Columbus, O., 236 E. Town St	2d Best	3 00
Mrs. Fred Warnecke, Columbus, O	Best Still Life Study	5 00
Mrs. C. F. Palmer, Indianapolis, Ind	2d Best	3 00
A. F. Lundberg, Columbus, O	Best Exhibition Oil Paintings	15 00
Maude Myers, Columbus, O., 32 W. University St	2d Best	5 00
	Water Color Paintings.	
Mrs. C. F. Palmer, Indianapolis, Ind	Best Portrait	5 00
Mary Russell, Springfield, O	2d Best	3 00
Mrs. Chas. W. Hunter, Springfield O	Best Full Length Figure	4 00
Alice Schille, Columbus, O	2d Best	2 00
Miss M. L. Pillow, St. Augustine, Fla., Lorilland Villa	Best Landscape	4 00
Mary Russell, Springfield, O	2d Best	2 00
Neva J. Collins, Columbus, O	Best Fruit Piece	4 00
Miss M. L. Pillow, St. Augustine, Fla	2d Best	2 00
Alice Schille, Columbus, O	Best Flower Piece	4 00
E. Louise Jenkins, Columbus, O	2d Best	2 00
E. Louise Jenkins, Columbus, O	Best Marine Study	4 00
Daisy M. Scott, Columbus, O	2d Best	2 00
Mrs. Chas. N. Hunter, Springfield, O	Best Still Life Study	4 00
Mrs. C. F. Palmer, Indianapolis, Ind	2d Best	2 00
F. J. Baske, Columbus, O., Olentangy Park	Best Exhibition of Paintings in Water Colors	10 00
Neva J. Collins, Columbus, O	2d Best	5 00
	Pastels.	
Alice Schille, Columbus, O	Best Portrait	3 00
Mary Russell, Springfield, O	2d Best	2 00
Mrs. C. F. Palmer, Indianapolis, Ind	Best Landscape	3 00
Eva B. Mosteller, Newark, O	2d Best	2 00
Mary Russell, Springfield, O	Best Animal	3 00
Eva B. Mosteller, Newark, O	2d Best	2 00
Mrs. Jessie Hatch, Newark, O., Church St	Best Game	3 00
Maude Myers, Columbus, O	2d Best	2 00
Mrs. C. F. Palmer, Indianapolis, Ind	Best Fruit	3 00
Mrs. T. J. Evans, Cumberland, O	2d Best	2 00
Mary Russell, Springfield, O	Best Still Life	3 00
Mrs. C. F. Palmer, Indianapolis, Ind	2d Best	2 00
Maude Myers, Columbus, O	Best Figure	3 00
Alice Schille, Columbus, O	2d Best	2 00

FINE ARTS—Continued.

Owner's Name and Address.	Name of Article.	
	Pastels.	
Maude Myers, Columbus, O.	Best Portrait, Crayon or Charcoal	$2 00
Mrs. Chas. N. Hunter, Springfield, O.	2d Best	1 00
Miss M. L. Pillow, St. Augustine, Fla.	Best Landscape, Crayon or Charcoal	2 00
Eva B. Mosteller, Newark, O.	2d Best	1 00
Mrs. C. F. Palmer, Indianapolis, Ind.	Best Still Life, Crayon or Charcoal	2 00
Mrs. Chas. N. Hunter, Springfield, O.	2d Best	1 00
Mrs. Chas. N. Hunter, Springfield, O.	Best Pen and Ink Drawing, Full Length	2 00
Miss M. L. Pillow, St. Augustine, Fla.	2d Best	1 00
Miss M. L. Pillow, St. Augustine, Fla.	Best Pen and Ink Drawing, Still Life	2 00
Mrs. Chas. N. Hunter, Springfield, O.	2d Best	1 00
Mrs. Chas. N. Hunter, Springfield, O.	Best Pencil Drawing, Still Life	2 00
Miss M. L. Pillow, St. Augustine, Fla.	2d Best	1 00
Mrs. Chas. N. Hunter, Springfield, O.	Best Pencil Drawing, From Figure	2 00
Mark Russell, Columbus, O., Von Gerichten Co	2d Best	1 00

PAINTINGS, DRAWINGS, ETC.

Open to Amateurs Only.

Owner's Name and Address.	Name of Article.	Amount.
	Oil Paintings.	
Grace Young, Columbus, O., 850 Oak St	Best Portrait	$5 00
Myra F. Hitchcock, Columbus, O., 380 W. 8th Ave.	2d Best	3 00
Myra F. Hitchcock, Columbus, O.	Best Full Length Figure	3 00
Grace Young, Columbus, O.	2d Best	1 00
Miss M. Johnson, Dayton, O.	Best Animal Study	3 00
Corynne Snyder, Columbus, O.	2d Best	1 00
Alice M. Hipple, Delaware, O.	Best Landscape	3 00
Miss L. P. Warman, Norwood, O.	2d Best	1 00
Corynne Snyder, Columbus, O.	Best Fruit Piece	3 00
Miss M. Johnson, Dayton, O.	2d Best	1 00
Earl H. Hill, Columbus, O.	Best Flower Piece	3 00
Mrs. V. C. Norton, Columbus, O	2d Best	1 00
Lena E. Patterson, Athens, O.	Best Still Life Study	3 00
Madge Wing, Columbus, O., Sta. A	2d Best	1 00
Grace Young, Columbus, O.	Best Exhibition Oil Paintings	10 00
Miss M. Johnson, Dayton, O.	2d Best	5 00
	Water Color Paintings.	
Grace B Matson, Ashtabula, O	Best Portrait	4 00
Ethel A. Wragg, Dayton, O	2d Best	2 00
Corynne Snyder, Columbus, O.	Best Full Length Figure	3 00
Madge Wing, Columbus, O	2d Best	1 00
Miss L. P. Warman, Norwood, O.	Best Ohio Landscape	3 00
Mary Arabel Montgomery, Columbus, O., 489 King Ave	2d Best	1 00
Aurelia Brown, Columbus, O	Best Landscape (Summer Study)	3 00
Arthur Kiefer, Columbus, O,	2d Best	1 00
Mrs. E. M. Trowbridge, Columbus, O	Best Flower Piece	3 00
M. E. Wiltberger, Columbus, O	2d Best	1 00
M. E. Wiltberger, Columbus, O	Best Fruit Piece	3 00
Mrs. J. N. Chamberlain, Beloit, Wis., 902 College Ave.	2d Best	1 00
Grace Young, Columbus, O.	Best Marine Study	3 00
Arthur Kiefer, Columbus, O.	2d Best	1 00
Lee H. Cook, Columbus, O., 130 E. Mound St.	Best Still Life Study	3 00
Carrie F. Mosteller, Newark, O.	2d Best	1 00
Mrs. J. N. Chamberlain, Beloit, Wis.	Best Exhibition, Water Colors	8 00
Miss M. Johnson, Dayton, O.	2d Best	4 00
	Pastels	
Lena E. Patterson, Athens, O.	Best Portrait	3 00
Mrs. W. A. Himmeger, Marion, O	Best Landscape	2 00
Carrie F. Mosteller, Newark, O.	2d Best	1 00
Miss M. Johnson, Dayton, O.	Best Animal	2 00
Carrie F. Mosteller, Newark, O.	2d Best	1 00

FINE ARTS—Concluded.

Owner's Name and Address.	Name of Article.	Amount.
	Pastels.	
Lena E. Patterson, Athens, O	Best Game	$2 00
Carrie F. Mosteller, Newark, O	2d Best	1 00
Mrs. W. A. Himmeger, Marion, O	Best Fruit	2 00
Miss L. P. Warman, Norwood, O	2d Best	1 00
Miss M. Johnson, Dayton, O	Best Still Life	2 00
Lee H. Cook, Columbus, O	2d Best	1 00
Lena E. Patterson, Athens, O	Best Figure	2 00
Mrs. L. C. Covault, Troy, O	2d Best	1 00
Carrie F. Mosteller, Newark, O	Best Autumn Landscape	2 00
Mrs. L. C. Covault, Troy, O	2d Best	1 00
	Drawings.	
John Wiblishauser, Columbus, O., 922 Mohawk	Best Portrait, Crayon or Charcoal	2 00
Anna Scott, Columbus, O , 1274 Summit St	2d Best	1 00
Lee H. Cook, Columbus, O	Best Landscape, Crayon or Charcoal	2 00
A. B. Sloer, Trenton, N. J. ,123 S. Warren St	2d Best	1 00
Lee H. Cook, Columbus, O	Best Still Life, Crayon or Charcoal	2 00
Ethel A. Wragg, Dayton, O	2d Best	1 00
Lena E. Patterson, Athens, O	Best Drawing from Cast, Crayon or Charcoal	2 00
Ethel A. Wragg, Dayton, O	2d Best	1 00
Anna Scott, Columbus, O	Best Pen and Ink, Full Length Figure	2 00
Mary Alice Biddle, Columbus, O., 110 W. First Ave	2d Best	1 00
Anna Scott, Columbus, O	Best Pen and Ink, Still Life	2 00
Morris E. Bruffet, Columbus, O., 476 Buttles Ave	2d Best	1 00
Lee H. Cook, Columbus, O	Best Pen and Ink, Landscape	2 00
D. J. Deibel, Columbus, O., 729 S. Champion Ave	2d Best	1 00
Anna Scott, Columbus, O	Best Pencil Drawing, Still Life	2 00
Hester C. Harris, Springfield, O	2d Best	1 00
Edna Outcault, Columbus, O., 33½ W. Long St	Best Pencil Drawing, Flower Piece	2 00
Hester C. Harris, Springfield, O	2d Best	1 00
Anna Scott, Columbus, O	Best Pencil Drawing, From Figure	2 00
Grace Young, Columbus, O	2d Best	1 00
Lee H. Cook, Columbus, O	Best Pencil Drawing, From Cast	2 00
A. B. Sloer, Trenton, N. J	2d Best	1 00
Lena E. Patterson, Athens, O	Best Display of Drawings in Pencil, Charcoal, Crayon or Brush	4 00
Edna Owings, Columbus, O., 1308 E. Long St	2d Best	2 00
	Photography.	
James E. Taggart, Delaware, O	Best Landscape, 2 Prints 5x7	2 00
Alice M. Hipple, Delaware, O	2d Best	1 00
James E. Taggart, Delaware, O	Best Animal, 2 Prints 5x7	2 00
Alice M. Hipple, Delaware, O	2d Best	1 00
Alice M. Hipple, Delaware, O	Best Composition, 2 Prints 5x7	2 00
James E. Taggart, Delaware, O	2d Best	1 00
Alice M. Hipple, Delaware, O	Best Landscape, 2 Prints 4x5	2 00
James E. Taggart, Delaware, O	2d Best	1 00
James E. Taggart, Delaware, O	Best Animal, 2 Prints 4x5	2 00
Elizabeth Leigh, Groveport, O	2d Best	1 00
Alice M. Hipple, Delaware, O	Best Composition, 2 Prints 4x5	2 00
James E. Taggart, Delaware, O	2d Best	1 00
Alice M. Hipple, Delaware, O	Best 6 Prints, 3½x3½	2 00
James E. Taggart, Delaware, O	2d Best	1 00
Alice M. Hipple, Delaware, O	Best Portrait, Any Size	2 00
James E. Taggart, Delaware, O	2d Best	1 00
James E. Taggart, Delaware,O	Best Harvest Scene, Any Size	2 00
Alice M. Hipple, Delaware, O	2d Best	1 00
Alice M. Hipple, Delaware, O	Best Display 5 Prints, 4x5 or Larger	4 00
James E. Taggart, Delaware, O	2d Best	2 00

EXHIBITS IN NON-PREMIUM DEPARTMENTS.

AGRICULTURAL IMPLEMENTS AND MACHINERY.

R. O. Hinsdale, Member in Charge.

Adams, J. D., & Co., Indianapolis, Ind	Road Machinery.
Adrian Wire Fence Co., Adrian, Mich	Farm Fences.
Adriance, Platt & Co., Poughkeepsie, N. Y	Grain Binders, Mowers, Harrows, etc.
Advance Mfg. Co., Hamilton, O	Gasoline Engines.
Akron Cultivator Co., Akron, O	Cultivators.
American Seeding Machine Co., Springfield, O	Seed Drills.
American Steel and Wire Co., Chicago, Ill	Lawn and Poultry Fencing and Gates.
American Drill Co., Springfield, O	Grain Drills.
Amstutz, Peter B., Bluffton, O	Wooden Hand Forks and Rakes.
Anchor Fence and Mfg. Co., Cleveland, O	Farm, Railroad and Ornamental Lawn Fences, Wood and Steel Wire.
Ann Arbor Machine Co., Ann Arbor, Mich	Hay Press.
Anthony Wire Fence Co., Tecumseh, Mich	Wire Fence, Drive and Walk Gates.
Appleton Mfg. Co., Batavia, Ill	Husker and Manure Spreader in Operation, Wind Mill, Pumps, etc.
Automatic Door Rail Co., Chicago, Ill	Automatic Door Rail.
Baker, A. D., Co	Traction Engine in Operation.
Bateman Mfg. Co., Orrville, O	Ironage Cultivators, Planters, Diggers and Seed Drill.
Be Saw Specialty Co., Cleveland, O	Arabian Stock Tablets.
Beach Mfg. Co., Charlotte, Mich	Road Culvert.
Behrens Com. Wagon Bed Co., Lancaster, O	Wagon Beds.
Bennett, H. L., & Co., Westerville, O	Tile Ditcher, Corn Huskers, Stump Puller, etc.
Bird, F. W., & Son, East Walpole, Mass	Paroid Roofing and Neponset Black Water Proof Paper.
Birdsell Mfg. Co., South Bend, Ind	Farm Wagons.
Bomgardner Mfg. Co., Cleveland, O	Calk Sharpener, for Sharpening Horseshoes.
Bradley, David, Mfg. Co., Bradley, Ill	Hay Press in Operation, Gasoline Engine, Plows, Cultivators, etc.
Bickford & Huffman	Grain Drills.
Brown Mfg. Co., Zanesville, O	Farm Wagons, Cultivators, Harrows, etc.
Brown-Manley Plow Co., Columbus, O	Plows, Cultivators, Harrows, Potato Diggers, etc.
Brunner Wagon Co., Wapakoneta, O	All Steel Farm Wagon.
Bucher & Gibbs Plow Co., Canton, O	Land Roller, Plows, Harrows, Cultivators, etc.
Buckeye Fence Machine Co., Cumberland, O	Fence Machine in Operation.
Buckeye Machinery Co., Columbus, O	Saws.
Buckeye Fertilizer Co., Columbus, O	Fertilizer.
Burke-Bollmeyer Mfg. Co., Wauseon, O	Wind Mills in Operation.
Cain, George W., Outville, O	Concrete Cistern.
Capen, Geo. E., Berlin Heights, O	Rotary Harrow.
Carter Wire Fence Machine Co., Mt. Sterling, O	Fence Machine and Steel Wire Fence
Case, J. I., Plow Co., Racine, Wis	Cultivators, Corn Planters and Cutters, Harrows, Plows, etc.
Case, J. I., Threshing Machine Co., Columbus, O	Traction Engine in Operation, etc.
Cement Machinery Co., Jackson, Mich	Cement Machinery.
Champion Evaporator Co., Hudson, O	Evaporator.
Champion Potato Machine Co., Hammond, Ind	Potato Digger.

Champion Thresher Co., Orrville, O	Traction Engine, Thresher, Separator and Clover Huller in Operation.
Christman, Edward, Co., Massillon, O	Drills.
Clifftoner Heat Distributor	Heat Distributor.
Collins Plow Co., Quincy, Ill	Hay Presses in Operation.
Columbus Cement Stone Co., Columbus, O	Concrete Block House, etc.
Columbus Machine Co., Columbus, O	Gasoline Engines in Operation.
Columbus Plow Co., Columbus, O	Plows and Harrows.
Colvin, Chase, South Charleston, O	Farm Fence and Posts.
Cook Motor Co., Delaware, O	Gasoline Engines in Operation.
Coquillard Wagon Works, Henderson, Ky	Farm Wagons.
Cox, Jas. J., Jackson, Mich	Cement Post Machine.
Cyclone Woven Wire Fence Co., Holly, Mich	Farm Fence and Gates.
Deere, John, Plow Co., Indianapolis, Ind	Gasoline Engines and Huskers in operation. etc.
Denmead, E. G., West Liberty, O	Swinging Farm Gate.
Dowagiac Mfg. Co., Dowagiac, Mich	Grain Drills in Operation.
Dunham, J. W., & Son	Land Rollers and Pulverizers.
Empire Drill Co., Shortsville, N. Y	Grain Drills in Operation.
Enterprise Foundry and Fence Co., Indianapolis, Ind	Iron and Wire Fence and Gates.
Enterprise Mfg. Co., Columbiana, O	Saw Mill in Operation.
Erskin, W. B., Madison Mills, O.,	Derrick and Hay Stacker.
Fairbanks, Morse & Co., Cincinnati, O	Scales and Gasoline Engines.
Farmers' Co-operative Harvesting Machine Co., Springfield, O	Binders and Mowers in Operation.
Flint Wagon Works, Flint Mich	Wagons.
Flint & Walling Mfg. Co., Columbus, O	Wind Mills, Pumps, etc.
Foos Mfg. Co., Springfield, O	Gasoline Engines, Corn Harvesters,etc.
Foos Gas Engine Co	Gasoline Engines in Operation.
Fort Wayne Wind Mill Co., Ft. Wayne, Ind	Wind Mills in Operation.
Francisco Adjustable Concrete Block Machine Co., Columbus, O	Machinery for Making Cement Blocks.
Frick Co., Waynesboro, Pa	Traction Engines and Separators in Operation.
Frost Wire Fence Co., Cleveland, O	Farm Fence and Gates.
Geiser Mfg. Co., Waynesboro, Pa	Traction Engines in Operation, Grain Drills, etc.
Geneva Metal Wheel Co., Geneva, O	Farm Trucks with Metal Wheels.
Good Roads Machinery Co., Pittsburg, Pa	Rock Crusher in Operation, etc.
Green, D. N., Sunbury, O	Farm Gates.
Green, Prof., Columbus, O	Spraying Outfit.
Hamm, M., Co., Washington C. H., O	Fertilizer.
Hansberger, H., Columbus, O	Wire Fence, Cement Posts, etc.
Harris & Reese, Galion, O	Com.Wagon, Wagon Box,Wagon Rack.
Harrison, W. R., & Co., Massillon, O	Tornado Ensilage Cutters in Operation.
Hayden Automatic Block Machine Co., Columbus, O	Machine for Making Concrete Blocks.
Heller-Aller Co., Napoleon, O	Wind Mills, Pump and Tanks, etc.
Herr, John, Marion, O	Railroad Tie.
Heuch & Dunngold, York, Pa	Harrows and Cultivators.
Hill, J. B., Findlay, O	Moulds for Grain Tile or Sewer.
Hillsdale Wheel Co., Hillsdale, Mich	Farm Wagons.
Hoffman Mfg. Co., Sandusky, O	Elevating Hand Trucks.
Hoosier Drill Co., Richmond, Ind	Wheat Drills in Operation, etc.
Hoover-Prout Co., Avery, O	Potato Digger.
Huber Mfg. Co., Marion, O	Threshers in Operation.
Hunt, Helen, Ferris & Co., Harvard, Ill	Hay Carriers, Forks, Barn Door Hinges, etc.
Hurst, Chas. B., Co., Chillicothe, O	Sewer Pipe, Cement Grave Vaults, etc.
Hutchison, R., Pavilion, N. Y	Farm Fence, etc.
Indiana Road Machine Co., Fort Wayne, Ind	Stone Crusher in Operation, Road Plows, etc.
Indiana Silo Co., Anderson, Ind	Silo 10x20.
International Fence and Fireproofing Co., Columbus, O	Farm and Lawn Fence and Gates.

International Harvester Co. of America, Columbus, O	Steam Hay Press in Operation, Farm Wagons, etc.
Jesche Bros., Bellevue, O	Ditching Machine in Operation.
Kansas City Hay Press and Mfg. Co., Columbus, O	Gasoline Engines, Hay Presses, Scales, etc.
Keller Mfg. Co., Corydon, Ind	Farm Wagons.
Kelly Springfield Road Roller Co., Springfield, O	Steam Rollers in Operation.
Kemp & Burpee Mfg. Co., Syracuse, N. Y	Manure Spreaders.
Kemp, J. S., Mfg. Co., Newark Valley, N. Y	Manure Spreaders in Operation.
Kenney Machinery Co., Indianapolis, Ind	Corn Huskers and Gasoline Engines in Operation.
Kentucky Drill Co., Louisville, Ky	Cider Mills, Grain Drills, etc.
Keystone Farm Machine Co., New Waterford, O.	Weeders, Cultivators, and Cider Mills.
Koontz, G. M., Vanatta, O	Concrete Fence Posts.
Lambert Machine Co., Columbus, O	Friction Automobiles.
Lamb Wire Fence Co., Adrian, Mich	Lawn and Farm Fence and Gates.
Lehr Agricultural Co., Fremont, O	Land Roller, Crushers, Cultivators, etc.
Linnaby, Burr, Westerville, O	Fertilizers.
London Fence Machine Co., Cleveland, O	Field Fence and Gates.
London Machinery Co., Fairfield, Ia	Barn Door Hangers, Pulleys, etc.
Long-Allstatter Co., Hamilton, O	Cultivators, Plows, Harrows, etc.
Loomis Machine Co., Tiffin, O	Well Drilling Machines, etc.
Manson-Campbell Co., Detroit, Mich	Fanning Mill, Oats and Wheat Separator, etc
Mason Fence Co., Leesburg, O	Concrete Fence Posts and Coiled Wire Fence.
Mast, Foos & Co., Springfield, O	Pumps, Lawn Mowers and Gasoline Engines.
Mast, P. P. ,& Co., Springfield, O	Fertilizers, Cider Mill, etc.
McCloskey Fence Co., Detroit, Mich	Fence Machine in Operation.
McDonald Bros. Pitless Scale Co., Pleasant Hill, Mo	Scales.
McSherry Mfg. Co., Middletown, O	Grain Drills, Harrows, etc.
Midland Mfg. Co., Tarkeo, Mo	Cultivators.
Milburn Wagon Co., Toledo, O	Farm Wagons and Buggies.
Miles Concrete Building Block Machine Co., Columbus, O	Concrete Machine in Operation.
Miller Mfg. Co., Marion, O	Kraut Cutters.
Mobile Garden Implement Mfg. Co., Mt. Gilead, O	Cultivators and Gardener's Truck.
Morris, Nelson & Co., Chicago, Ill	Meats and Fertilizer.
Mossman, James, Westerville, O	Wire Stretcher.
Mott, D. C., Sandusky, O	Washing Machine in Operation.
National Drill Co., Cambridge City, Ind	Drills, Cultivators, Harrows, etc.
National Drill and Mfg. Co., Chicago, Ill	Drill in Operation, Stone Crushers, etc.
National Engineering Co., Saginaw, Mich	Gasoline Engines in Operation.
National Hot Air Furnace Co., Dayton, O	Furnaces.
National Pitless Scale Co., Dayton, O	Scales.
Never Rot Post Co., Westerville, O	Mould for Making Posts.
Newark Machine Co., Newark, O	Manure Spreader.
Nighswander, C. F., Gen. Agt., Toledo, O	Cement and Brick Machinery.
North End Waterproof Building Block Co., Columbus, O	Cement Blocks.
Ohio Cultivator Co., Bellevue, O	Hay Press and Corn Husker in Operation.
Ohio Manufacturing Co., Upper Sandusky, O	Traction Engine in Operation, Harrows, etc.
Ohio Motor Co., Sandusky, O	Gasoline Engines in Operation.
Ohio Rake Co., Dayton, O	Hay Loader, Delivery Rake, Harrows, etc.
Olds Gasoline Engine Works, Lansing, Mich	Gasoline Engines.
Page Woven Wire Fence Co., Adrian, Mich	Farm Fence and Gates.
Papec Machine Co., Lima, N. Y	Silo Filler in Operation.
Parke, Davis & Co, Detroit, Mich	Disinfectant.
Parlin & Orendorff Co., Canton, Ill	Plows, Potato Diggers, Harrows, etc.

Petro, C. W., North Salem, Ind	Combination Wagon Box.
Pittsburg Steel Co., Pittsburg, Pa	Farm Fence and Wire Nails.
Porter, J. E., & Co., Ottawa, Ill	Models for Barn Door and Hay Carriers.
Reeves Bros., Columbus, O	Gasoline Engines in Operation.
Rich Pump Co., Cincinnati, O	Pumps.
Ritchey, Geo. E., Supply Co., Columbus, O	Scrapers, Drags and Plows.
Robinson-Tilton Machinery Co., Columbus, O	Gasoline Engines in Operation.
Roderick-Lean Mfg. Co., Mansfield, O	Cultivators, Harrows, Weeders, etc.
Rosenthal Corn Husker Co., Milwaukee, Wis	Corn Huskers in Operation.
Ross, E. W., Co., Springfield, O	Manure Spreaders and Ensilage Cutters in Operation.
Ross Supply Co., Greenville, O	Wind Mills, Pumps, Gasoline Engines, etc.
Russell Wind Stacker Co	Wind Stacker.
Safety Shredder Co., New Castle, Ind	Safety Shredder in Operation.
Scheidler Machine Works Co., Newark, O	Traction Engine in Operation.
Sechler, D. W., Carriage Co., Moline, Ill	Corn Planters in Operation.
Shelton, J. I., New Carlisle, O	Cement Posts, Machine, etc.
Shildts, H. A., Scio, O	Farm Gates.
Shimer & Co., Anderson, Ind	Wire Fence.
Shobe Mfg. Co., Columbus, O	Washing Machine.
Shunk Plow Co., Bucyrus, O	Wagon and Plows.
Silver Mfg. Co., Salem, O	Ensilage Cutters in Operation.
Silver, S. C., London, O	Farm Fence and Anchor Posts.
Simpson Cement Mould Co., Columbus, O	Moulds for Making Concrete Columns.
Smith Agricultural Chemical Co., Columbus, O	Fertilizer.
Smith Mfg. Co., Chicago, Ill	Manure Spreader in Operation.
Snyder & Zabst, Bellevue, O	Emery Cement Brick Machine.
South Bend Chilled Plow Co., South Bend, Ind.	Plows, Harrows, Cultivators, etc.
Spring Steel Fence and Wire Co., Anderson, Ind.	Wire Fence and Gates.
Standard Harrow Co., Utica, N. Y	Manure Spreader, Sprayer, Cultivator, etc.
Star Mfg. Co., New Lexington, O	Feed Mills in Operation, Flour Mills, etc.
Sullivan, M. J., Co., Springfield, O	
Sycamore Chilled Plow Co., Syracuse, N. Y	Harrows, Cultivators, Plows, etc.
Thomas & Smith, Chicago, Ill	Hot-Air Pumping Engine in Operation
Thomas Mfg. Co., Springfield, O	Hay Loader, Grain Drill, etc.
Tiffin Wagon Co., Tiffin, O	Farm Wagons.
Troy Wagon Works Co., Troy, O	Farm Wagons.
VanBuren, Heck & Marvin Co., Findlay, O	Traction Ditcher in Operation.
Washington Fuel Co., Columbus, O	Coal.
Wasson Stanchion Co., Marion, O	Wooden Stanchion in One Frame.
Wayne Works, Richmond, Ind	Wagons, Grain Drills, Corn Planters, etc.
Whitman Agricultural Co., Indianapolis, Ind	Bailing Press Models.
Wilder-Strong Implement Co., Monroe, Mich	Land Rollers and Silo Filler in Operation
Williams Contractors' Supply Co., Columbus, O	Plows, Road Graders, etc.
Wilson, F. M., & Co., Selma O	Ensilage Cutters in Operation.
Winget Concrete Machine Co., Columbus, O	Concrete Building Block Machinery.
Yarnell, I. E., & Co., Toledo, O	Machinery for Making Cement Blocks in Operation.
Zanesville Chemical Engine Co., Zanesville, O	Fire Extinguisher.

MERCHANTS' AND MANUFACTURERS' PRODUCTS.

T. E. Cromley, Member in Charge.

American Art Tile Co., Columbus, O	Cement and Concrete Building Stone.
Ames Brothers Novelty Co.,	Quick Hitching Strap.
Anderson Carriage Co., Detroit, Mich	Vehicles of All Kinds.
Bauer Brothers, Sandusky, O	Buggies.
Blackwood, Green & Co., Columbus, O	Stoves, Tinware, Tableware and Washing Machines.

Bradley, David, Mfg. Co., Bradley, Ill	Buggies, Surreys, Phætons and Carriages.
Buckeye Saw Co., Columbus, O	Saws of Every Description.
Cadiz Electric Co., Cadiz, O	Electric Apparatus of All Kinds.
Carlisle & Son Columbus, O	Stoves and Kitchen Cabinets.
Cleveland Steel Range Co., Cleveland, O	Steel Ranges, etc.
Colonial Carriage Co., Circleville, O	Buggies, Surreys, Phætons, etc.
Columbus Apron and Hood Co., Columbus, O	Storm Fronts, Horse Covers, etc.
Columbus Buggy Co., Columbus, O	Carriages, Buggies, Automobiles.
Columbus Carriage and Harness Co., Columbus,O	Buggies, Phætons, Surreys, Light and Heavy Harness and Robes.
Columbus Heating and Ventilating Co., Columbus, O	Furnaces and Heaters.
Cook, Geo. W., Wagon Co., Marion, O	Funeral Outfits.
Cussins & Fearn Co., Columbus, O	Stoves, Household Goods.
Daugherty Mfg. Co., Columbus, O	Storm Fronts, Aprons and Hoods.
Donovin & Hunt, Columbus, O	Ranges and Utensils for Army Purposes.
Excelsior Seat Co., Columbus, O	Bodies for All Kinds of Vehicles.
Findlay Carriage Co., Findlay, O	Buggies, Surreys and Phætons.
Flint Wagon and Carriage Co., Flint, Mich	Buggies, Phætons, Surreys, Runabouts, etc.
Gaumer, E. E., & Sons, Urbana, O	Pony Turnouts and Basket Phætons.
Gerstenslager Bros., Marshallville, O	Buggies, Carriages and Phætons.
Hadden Bros., Savannah, N. Y	Patent Heater for Sad-irons.
Hatch Wheel Works, Columbus, O	Buggy and Carriage Wheels.
Herring Buggy Co., Mansfield, O	Surreys, Phætons, Buggies and Carriages.
Holcker Bros. Buggy Co., Crestline, O	Buggies, Surreys and Phætons.
Knoderer, L. F., Columbus, O	Heater and Filterer.
Mason, Henry, Monumental Works, Columbus,O.	Monuments, Slabs and Markers.
Monypenny-Hammond Co., Columbus, O	American Beauty Coffee.
Newman Bros., Columbus, O	Patent Weather Strip.
New Method Co., Mansfield, O	Patent Cooking Stove and Range.
Ohio Buggy Co., Galion, O	Buggies, Phætons,and Surreys.
Ohio Vehicle and Harness Co., Columbus, O	Heavy Harness and Robes.
Ohio Whip Co., Osborn, O	Buggy Whips.
Ohlen, Jas., Saw Co., Columbus, O	Saws of All Kinds.
Patterson, W. A., & Co., Flint, Mich	Buggies, Surreys, Phætons, Carriages, etc.
Peabody Carriage Co., Fostoria, O	Buggies, Phætons, Surreys, etc.
Peerless Steel Range Co., Columbus, O	Natural Gas Ranges, Heaters and Stoves.
Peninsular Stove Co., Detroit, Mich	Cooking and Heating Stoves and Ranges.
Peters Buggy Co., Columbus, O	Buggies, Surreys and Phætons.
Post Bros. Buggy Co., Columbus, O	Buggies, Phætons and Runabouts.
Prince-Stokoe Oil Stove Co., Cleveland, O	Oil Stoves.
Richmond Buggy Co., Richmond, Ind	Buggies, Phætons and Runabouts.
Safe Stormfront Co., Fremont, O	Storm Fronts for Buggies.
Schoct Manufacturing Co., Cincinnati, O	Runabouts, Phætons, Automobiles,etc.
Scioto Buggy Co., Columbus, O	Buggies, Surreys, Phætons, etc.
Seeley & Beery, Columbus, O	Washing Machines, Stoves for Natural Gas and Coal.
Sells, J. H. & F. A., Columbus, O	Harness, Whips and Robes.
Snyder, Geo. W., & Son, Columbus, O	Natural Gas Heaters.
Stewart Bros., Columbus, O	Natural Gas and Coal Stoves.
U. S. Carriage Co., Columbus, O	Hearses, Coupes, Landaus, etc.
Walborn & Riker Co., Saint Paris, O	Pony Outfits.
Warren Paint Co., Columbus, O	Paints, Oils, Varnishes, etc.
Warren & Southwick, Columbus, O	Delivery Wagons.
Williams, D. G., Co., Columbus, O	Stoves, Ranges, Washing Machines, etc.
Yardley, A. L., Columbus, O	Window Screens, Shades, etc.
Zimmerman Mfg. Co., Auburn, Ind	Buggies, Surreys, Carriages, etc.

MERCHANDISE, MUSIC, ETC.

T. E. Cromley, Member in Charge.

American Refinery Co., Columbus, O	Merchandise.
Apple, M. S., Columbus, O	Merchandise.
Arnold, W. H., Charleston, W. Va	Merchandise.
Baird, E., & Co., Columbus, O.	Shoes.
Beach, J. S., Elmyra, O	Merchandise.
Bell-Dana Co., Columbus, O.	Pictures and Frames.
Belt, H. E.	Merchandise.
Blickinsderfer Typewriter Co., Columbus, O.	Typewriter.
Carlile, W. S., & Son, Columbus, O.	Furniture, Carpets, Rugs, etc.
Cassell, C. E., Cincinnati, O.	Merchandise.
Chaney, L. F., Hillsboro, O	Thermometers and Barometers.
Cherrington Printing and Engraving Co., Columbus, O.	Merchandise.
Children's Home Society, Columbus, O	Illustration of Society's Work.
Citizen's Telephone Co., Columbus, O.	Telephone Exchange.
Columbus Business College, Columbus, O.	Demonstrating Work of College.
Columbus Chemical Co., Columbus, O	X-Ray Ointment, etc.
Cussins, W. C., Co., Columbus, O	Ladies' Wraps, Shoes, etc.
Deaf Mute Institute, Columbus, O	Display of Pupils Work.
Egg Baking Powder Co., New York City, N. Y	Merchandise.
Eureka Rug Mfg. Co., Columbus, O	Rugs.
Francis Mfg. Co., Columbus, O.	Reclining Chairs, etc.
Goldsmith, I., Columbus, O	Merchandise.
Hesket, W. E., Columbus, O	Furniture, Carpets, etc.
Ladies' Aid Society (Wesley Chapel), Columbus, O.	Merchandise.
Lutz & Schramm, Allegheny, Pa	Pickles, Apple Butter, etc.
Miller's Fair, Columbus, O	Children's Automobiles, Wagons, etc.
Monroe, W. M., Columbus, O	Merchandise.
Newmark, H., Chicago, Ill	Merchandise.
O'Daniel, J. H., Columbus, O.	Merchandise.
Puntenney, Eutsler & Co., Columbus, O	Pianos.
Reynolds, C. T., Columbus, O	Merchandise.
Rose, J	Merchandise.
Shobe Mfg. Co., Columbus, O.	Washing Machine.
Stewart Bros., Columbus, O	Furniture, Carpets, Rugs, etc.
Sunlight Specialty Co., Columbus, O.	Merchandise.
Westlake, M. W., Columbus, O	Merchandise.
Whitsit, Perry B., Columbus, O.	Phonographs and Electric Pianos

OFFICIAL REPORT

OF THE

SECRETARY

OF THE

OHIO STATE BOARD OF AGRICULTURE

ON

Commercial Fertilizers

LICENSED TO BE SOLD

DURING THE YEAR 1905.

BOARD OF
LIVE STOCK
COMMISSIONERS.
PAUL FISCHER,
STATE VETERINARIAN.

STATE OF OHIO.
Department of Agriculture
W. W. MILLER, SECRETARY.

STATE BOARD
OF
AGRICULTURE.
A. F. BURGESS,
CHIEF INSPECTOR OF
NURSERIES AND ORCHARDS.

Columbus, Ohio, December 31, 1905.

To the Manufacturers of, Dealers in and Consumers of Commercial Fertilizers:

Agreeable to the requirement of the fertilizer law of Ohio, I herewith present "a correct report of all analyses" of commercial fertilizers made by the State Chemist, "and certificates filed" by the manufacturers or general agents, guaranteeing ingredients, for the year 1905.

The following tables of analyses and valuations of commercial fertilizers include all brands that have been properly licensed to sell in the state that have been found on the markets by my Deputy Inspectors of Fertilizers. An additional table will be found giving a list of brands which have been properly licensed, but not found on the markets. If other brands have been sold in this state they have not been found by my Deputies.

All licenses expire December 31, 1905, and no commercial fertilizers can be legally sold or offered for sale in the state after this date until fees are paid and licenses secured by the manufacturers or agents for the year ending December 31, 1906, so the agent who proposes handling, selling, or dealing in commercial fertilizers in 1906, will do well to see that the manufacturer has paid license on each and every brand he offers for sale, for if the manufacturer fails to do this, the "importer or party who causes it to be sold or offered for sale within the State of Ohio," will be held for the same or subjected to the payment of the fines and penalties prescribed in Sections 4446*f* and 7002 of the Revised Statutes. To avoid all possibility of trouble, the agent handling commercial fertilizers should see that the manufacturer has complied with the law before goods are offered for sale. Whether or not this has been done can be learned from the manufacturer, or from the Secretary of the State Board of Agriculture, Columbus, Ohio.

It is to the advantage of all dealers in and purchasers of commercial fertilizers that the fertilizer law should be enforced, and if they know of any brands offered for sale in 1905, not appearing in the following lists, they will aid the enforcement of the law and confer a favor by notifying the Secretary. In a few cases goods are shipped into the state by parties who are ignorant of the law, and who will promptly comply with its requirements as soon as they receive the necessary information.

With the co-operation of all farmers using commercial fertilizers, and of all just manufacturers and dealers, I feel certain that evasions of the law will be few and will soon cease altogether. The penalties prescribed by law and the injury to the reputation of the manufacturer who seeks to evade it are so great that he can not afford to neglect or refuse to comply with its reasonable requirements.

Manufacturers intending to place their goods on sale in Ohio should send to the Secretary for blanks on which to make formal application for license.

Manufacturers, when applying for licenses, will facilitate the work of sampling their goods by sending to the Secretary lists of their agents and stating where goods may be found.

SAMPLES SENT BY MANUFACTURERS.

To comply with the law, manufacturers should always send samples of commercial fertilizers to the Secretary of the State Board of Agriculture, when making applications for licenses, that they may be used in comparison with those drawn on the markets for analysis.

ADVANCE REPORTS.

It is my custom to send advance reports to manufacturers, to give them an opportunity to check the chemist's work, before the results are published in the annual report, in order to insure accuracy. The analyses reported will be published unless some errors are shown. It is not sufficient to claim they are wrong because they show lower percentages than the manufacturers claim; this is not proof or evidence of error. The object of sending these advance reports is to enable me to eliminate errors should they exist. Where there are doubts about the findings I will have samples re-tested and will, if requested, cause parts of the samples in question to be sent to any member of the Association of Official Agricultural Chemists, of which Prof. Harvey W. Wiley, of Washington, D. C., is Secretary; but the manufacturers making such requests must pay the official chemists they select for making analyses.

REGULAR ANALYSES.

The work of sampling and analyzing fertilizers is done in accordance with the fertilizer law of the state, and under this law the Official Chemist analyzes such samples as are furnished him by the Secretary of the State Board of Agriculture.

Samples are drawn from the open markets of the state and from stocks purchased by consumers of commercial fertilizers by my duly authorized Deputy Inspectors, Ed. Loewer, R. H. Ramsdell, B. M. Derthick and M. R. Merritt. Great care is taken in this work, and samples are drawn from every brand that can be found in the state by diligent search and inquiry, covering a period from the latter part of March until the early part of December. It is regretted that samples of all licensed goods could not be found, but until manufacturers and dealers give more care to the matter of informing me where goods can be found, perfect results can not be obtained. With the information possessed by the Secretary and his Deputy Inspectors, the field has been worked diligently and faithfully.

SPECIAL ANALYSES.

I frequently have requests from farmers and agents to make special analyses of samples of commercial fertilizers. I am obliged to say that the law does not provide for these, and I have no fund for paying for the work involved. If it will be an accommodation, I will have special analyses made by the Official Chemist of such samples as may be sent me with the proper fees, as follows: "Phosphates" and "Superphosphates": Ammonia, three dollars ($3); phosphoric acid (two determinations), six dollars ($6); potash, three dollars ($3); or a total of twelve dollars ($12) if all three ingredients are claimed. "Bones" and "Tankages": Ammonia, three dollars ($3); total phosphoric acid, three dollars ($3); potash, three dollars ($3); or a total of nine dollars ($9) if all three ingredients are claimed; or, in other words, three dollars ($3) for each and every determination.

In selecting a sample for analysis great care should be taken to secure a fair average of the goods from which the sample is drawn. A small quantity should be taken from five to eight different parts—top, bottom, center, sides, etc.—of each of several packages of fertilizers, and all these small parcels should be carefully and thoroughly mixed together; then from this take from one-half pint to a pint and put into an air-tight package—glass or tin—and send by express or mail, charges prepaid.

VALUATIONS OF COMMERCIAL FERTILIZERS.

Great care has been given to the subject of valuations, and the figures given in the following tables are the results of a careful and painstaking study of the market quotations of fertilizer ingredients and the cost of mixing and placing on the markets of the state well-prepared commercial fertilizers.

Of course, it is impossible in any system of commercial valuations to fix absolutely exact prices at which goods are or can be sold, uniformly and under all circumstances and conditions. The two objects sought, however, are, first, to give a uniform scale for commercial comparison; and second, to give as nearly as possible, a reasonably correct average price at which the farmer should have been able to buy good fertilizers in 1905.

It is always necessary to bear in mind that the values given to these fertilizers are intended to express their *commercial values;* that is, the cost at which the materials should be put together and sold at a fair profit; and are not necessarily indicative in any way of their *agricultural values,* which, of course, depend on the nature of the soils on which they are used and the needs of the crops grown.

VALUES FOR 1905.

Table No. 1.—Mixed Fertilizers, with Potash.

Ammonia, 13¼ cents per pound, or $2.65 per unit.

Available phosphoric acid, 5 cents per pound, or $1.00 per unit.

Insoluble phosphoric acid, in *bone,* 2½ cents per pound, or 50 cents per unit.

Insoluble phosphoric acid, in mixed animal and mineral, 1 cent per pound, or 20 cents per unit.

Potash (actual) from sulphate, 6 cents per pound, or $1.20 per unit.

Potash (actual) from muriate, 5¼ cents per pound, or $1.05 per unit.

Table No. 2.—Mixed Fertilizers, without Potash.

Ammonia, 13¼ cents per pound, or $2.65 per unit.

Available phosphoric acid, 5 cents per pound, or $1.00 per unit.

Insoluble phosphoric acid, in *bone,* 2½ cents per pound, or 50 cents per unit.

Insoluble phosphoric acid, in mixed animal and mineral, 1 cent per pound, or 20 cents per unit.

TABLE NO. 3.—DISSOLVED BONE.

Ammonia, 13¼ cents per pound, or $2.65 per unit.
Available phosphoric acid, 5 cents per pound, or $1.00 per unit.
Insoluble phosphoric acid, 2½ cents per pound, or 50 cents per unit.

TABLE NO. 4.—ROCK PHOSPHATE.

Available phosphoric acid, 5 cents per pound, or $1.00 per unit.

TABLE NO. 5.—ROCK PHOSPHATE AND POTASH.

Available phosphoric acid, 5 cents per pound, or $1.00 per unit.
Potash (actual) from sulphate, 6 cents per pound or $1.20 per unit.
Potash (actual) from muriate, 5¼ cents per pound, or $1.05 per unit.

TABLE NO. 6.—TANKAGE.

Ammonia, 9½ cents per pound, or $1.90 per unit.
Total phosphoric acid, 3 cents per pound, or 60 cents per unit.

TABLE NO. 7.—TANKAGE AND POTASH.

Ammonia, 9½ cents per pound, or $1.90 per unit.
Total phosphoric acid, 3 cents per pound, or 60 cents per unit.
Potash (actual) from sulphate, 6 cents per pound, or $1.20 per unit.
Potash (actual) from muriate, 5¼ cents per pound, or $1.05 per unit.

TABLE NO. 8.—BONES.

Ammonia, 13¼ cents per pound, or $2.65 per unit.

Phosphoric acid in "fine" bone, 3¾ cents per pound, or 75 cents per unit.

Phosphoric acid in "medium" bone, 3 cents per pound, or 60 cents per unit.

Potash, if found present, valued same as in TABLE NO. 1.

TABLE NO. 9.—POTASH SALTS.

Potash (actual) from sulphate, 6 cents per pound, or $1.20 per unit.
Potash (actual) from muriate, 5¼ cents per pound, or $1.05 per unit.

TABLE NO. 10.—NITRATE OF SODA.

Ammonia, 13¼ cents per pound, or $2.65 per unit.

TABLE NO. 11.—PHOSPHATE ROCK.

On the last pages of this report will be found the fertilizer law of the state, in force at this time.

W. W. MILLER, *Secretary.*

NOTE.—"Unit" is a trade expression used in speaking of the ingredients of commercial fertilizers, and means one percentum of a ton, or twenty pounds; *e. g.,* ammonia 13¼ cents per pound, or $2.65 per unit; that is, $2.65 for twenty pounds.

TABULATED ANALYSES AND VALUATIONS OF COMMERCIAL FERTILIZERS FOR THE YEAR ENDING DECEMBER 31, 1905.

All analyses are made by Prof. N. W. Lord, Ohio State University, Columbus, Ohio, Official Chemist.

TABLE I.—MIXED FERTILIZERS, WITH POTASH.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
1	**Great Eastern's Corn Fertilizer**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.20	3.18	9.34	9.34	1.46	.29	10.80	4.22	4.43	17.24	1
2	**Great Eastern's English Wheat Grower**........	Claimed.	1.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.15	3.05	9.40	9.40	1.02	.20	10.42	2.39	2.51	15.16	2
5	**Peerless Lawn Fertilizer**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	2.00	......	......	....
	The Canton Fert. and Chem. Co., Canton, O..	Found.	2.85	7.55	10.94	10.94	†1.46	.73	12.40	*3.05	3.66	22.88	5
6	**Special Sugar Beet Grower**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin., O.	Found.	1.15	3.05	8.44	8.44	1.59	.32	10.03	3.95	4.15	15.96	6
7	**Homestead A Bone Black**	Claimed.	2.50	......	8.00	......	......	......	10.00	1.50	......	......	...
	Michigan Carbon Works, Detroit, Mich......	Found.	2.40	6.36	9.46	9.46	1.98	.40	11.44	2.04	2.14	18.36	7
9	**Potash Special**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Chicago Fertilizer Co., Chicago, Ill......	Found.	1.05	2.78	8.89	8.89	2.49	.50	11.38	4.02	4.22	16.39	9
10	**Onion, Potato and Tobacco**	Claimed.	2.00	......	8.00	......	3.00	......	11.00	7.00	......	......	....
	Swift & Company, Chicago, Ill..............	Found.	2.35	6.23	8.57	8.57	†2.49	1.24	11.06	*7.38	8.86	24.90	10
11	**Potato and Tobacco Special**	Claimed.	2.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	2.40	6.36	8.06	8.06	2.68	.54	10.74	4.28	4.49	19.45	11

12	**Excelsior Guano**	Claimed.	1.00	......	8.00	......	......	......	10.00	7.00	......	......	....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	1.05	2.78	9.14	9.14	2.05	.41	11.19	6.76	7.10	19.43	12
14	**Harvest Bone**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	1.00	......	......	....
	The Bowker Fertilizer Co., Cincinnati, O.	Found.	1.20	3.18	8.12	8.12	2.94	.59	11.06	1.29	1.35	13.24	14
15	**Tobacco Grower**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	5.00	......	......	....
	The Bowker Fertilizer Co., Cincinnati, O.	Found.	2.05	5.43	9.08	9.08	2.05	.41	11.13	4.36	4.58	19.50	15
16	**Sure Crop**	Claimed.	1.00	......	9.00	......	2.00	......	11.00	2.00	......	......	....
	The Bowker Fertilizer Co., Cincinnati, O.	Found.	1.30	3.45	9.65	9.65	2.05	.41	11.70	2.04	2.14	15.65	16
17	**Ten Per Cent. Manure**	Claimed.	1.00	......	5.00	......	2.00	......	7.00	10.00	......	......	....
	The Bowker Fertilizer Co., Cincinnati, O.	Found.	1.20	3.18	5.38	5.38	1.40	.28	6.78	11.06	11.61	20.45	17
18	**Celery and Potato Grower**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	4.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	1.10	2.92	8.76	8.76	1.66	.33	10.42	*4.14	4.97	16.98	18
19	**Wheat, Corn and Oat Special**	Claimed.	1.00	......	7.00	......	2.00	......	9.00	1.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	1.10	2.92	7.93	7.93	2.30	.46	10.23	1.43	1.50	12.81	19
21	**Ohio and Michigan Special**	Claimed.	1.00	......	11.00	......	1.00	......	12.00	1.00	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y.	Found.	1.15	3.05	12.22	12.22	2.62	.52	14.84	*1.04	1.25	17.04	21
22	**Ideal Wheat and Corn**	Claimed.	2.00	......	9.00	......	1.00	......	10.00	5.00	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y.	Found.	1.80	4.77	10.04	10.04	3.90	.78	13.94	*5.72	6.86	22.45	22
23	**Fish Guano**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	3.00	......	......	....
	The Bowker Fertilizer Co., Cincinnati, O.	Found.	1.15	3.05	10.03	10.03	2.17	.43	12.20	3.26	3.42	16.93	23
24	**Wheat and Corn Special**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Chicago Fertilizer Co., Chicago, Ill.	Found.	1.07	2.84	7.92	7.92	1.38	.28	9.30	1.08	1.13	12.17	24
27	**Grain Grower**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	2.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	2.10	5.57	8.31	8.31	†2.94	1.47	11.25	2.31	2.43	17.78	27
28	**Fish and Potash, Tobacco and Potato Food**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin., O.	Found.	1.05	2.78	8.06	8.06	1.59	.32	9.65	4.55	4.78	15.94	28

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
29	**Ideal Grain Grower**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O..	Found.	0.85	2.25	8.31	8.31	2.05	.41	10.36	1.35	1.42	12.39	29
30	**Superphosphate**	Claimed.	2.00	......	8.00	......	4.00	......	12.00	2.00	......	......	....
	Swift & Company, Chicago, Ill..............	Found.	2.45	6.49	8.49	8.49	†3.58	1.79	12.07	*2.04	2.45	19.22	30
32	**Universal Phosphate**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	The Farmers' Fertilizer Co., Indianapolis, Ind.	Found.	0.85	2.25	8.81	8.81	3.84	.77	12.65	0.96	1.01	12.84	32
33	**Number One Fish Guano**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin., O.	Found.	1.15	3.05	10.69	10.69	2.23	.45	12.92	*1.20	1.44	15.63	33
36	**Perfection Tomato Grower**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	5.00	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin., O.	Found.	1.00	2.65	9.46	9.46	1.21	.24	10.67	3.59	3.77	16.12	36
37	**Farmers' Choice**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	5.00	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y......	Found.	0.90	2.39	8.76	8.76	4.73	.95	13.49	*4.82	5.78	17.88	37
42	**Red Line Complete Manure**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	Michigan Carbon Works, Detroit, Mich......	Found.	1.30	3.45	7.23	7.23	1.98	.40	9.21	1.33	1.40	12.48	42
46	**Tobacco and Potato Special**	Claimed.	2.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Hardy Packing Co., Chicago, Ill..........	Found.	2.30	6.10	8.00	8.00	2.74	.55	10.74	4.14	4.35	19.00	46
48	**Bradley's Potato and Root Phosphate**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.05	2.78	8.89	8.89	1.40	.28	10.29	3.85	4.04	15.99	48

50	**Cleve. Dryers' Potato, Tobac. and Gen. Crop Fert.**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.10	2.92	8.89	8.89	1.53	.31	10.42	3.95	4.15	16.27	50
56	**Grain Manure**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	1.00	......	......	....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	1.15	3.05	8.06	8.06	1.02	.20	9.08	1.27	1.33	12.64	56
58	**Potato Special**	Claimed.	3.00	......	8.00	......	2.00	......	10.00	6.00	......	......	....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	3.25	8.61	7.80	7.80	1.98	.40	9.78	6.49	6.81	23.62	58
61	**Standard Phosphate**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Western Chemical Co., Chicago, Ill.	Found.	1.95	5.17	8.05	8.05	4.02	.80	12.07	2.50	2.63	16.65	61
65	**Complete Fertilizer**	Claimed.	1.25	......	8.00	......	3.00	......	11.00	1.00	......	......	....
	Swift & Company, Chicago, Ill.	Found.	1.60	4.24	8.83	8.83	†2.94	1.47	11.77	1.27	1.33	15.87	65
68	**Truck Grower**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	4.00	......	......	....
	Swift & Company, Chicago, Ill.	Found.	1.10	2.92	8.70	8.70	†2.49	1.24	11.19	*3.91	4.69	17.55	68
69	**Potato, Celery and Onion Fertilizer**	Claimed.	1.00	......	5.00	......	1.00	......	6.00	10.00	......	......	....
	Swift & Company, Chicago, Ill.	Found.	0.95	2.52	5.57	5.57	1.34	.27	6.91	*8.23	9.88	18.24	69
70	**Fish Scrap and Potash**	Claimed.	2.00	......	8.00	......	......	......	......	2.00	......	......	....
	The Buckeye Fertilizer Co., Columbus, O.	Found.	2.00	5.30	7.80	7.80	4.60	.92	12.40	2.39	2.51	16.53	70
71	**Special Blood and Potash Mixture**	Claimed.	1.00	......	8.00	......	......	......	......	4.00	......	......	....
	The Buckeye Fertilizer Co., Columbus, O.	Found.	1.25	3.31	8.57	8.57	2.74	.55	11.31	3.90	4.10	16.53	71
72	**Erie Phosphate**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Western Chemical Co. Chicago, Ill.	Found.	1.15	3.05	8.32	8.32	2.81	.56	11.13	*3.38	4.06	15.99	72
73	**Potato Manure**	Claimed.	1.50	......	8.00	......	......	......	10.00	10.00	......	......	....
	The Western Chemical Co., Chicago, Ill.	Found.	1.80	4.77	9.72	9.72	1.21	.24	10.93	*10.30	12.36	27.09	73
74	**Wheat Grower No. 1**	Claimed.	2.50	......	10.00	......	3.00	......	13.00	3.00	......	......	....
	The Seneca Fertilizer Co., Tiffin, O.	Found.	3.50	9.28	10.61	10.61	†3.52	1.76	14.13	*2.70	3.24	24.89	74
75	**Potato and Vegetable Manure**	Claimed.	1.50	......	8.00	......	2.00	......	10.00	6.00	......	......	....
	The Seneca Fertilizer Co., Tiffin, O.	Found.	2.00	5.30	8.51	8.51	†2.36	1.18	10.87	*6.43	7.72	22.71	75

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
78	**Ammoniated Bone and Potash**	Claimed.	5.75	......	......	......	......	......	16.00	3.00	......	......	....
	Swift & Company, Chicago, Ill..............	Found.	5.50	14.58	12.67	12.67	†4.79	2.39	17.46	2.70	2.84	32.48	78
81	**Wheat and Clover**	Claimed.	1.00	......	9.00	......	1.00	......	10.00	4.00	......	......	....
	The Scientific Fertilizer Co., Pittsburg, Pa....	Found.	1.05	2.78	9.39	9.39	1.28	.26	10.67	4.32	4.54	16.97	81
82	**Economy Fertilizer**	Claimed.	2.00	......	9.00	......	1.00	......	10.00	4.00	......	......	....
	The Scientific Fertilizer Co., Pittsburg, Pa....	Found.	2.35	6.23	9.08	9.08	1.53	.31	10.61	3.61	3.79	19.41	82
83	**Scientific Potato**	Claimed.	3.00	......	8.00	......	2.00	......	10.00	6.00	......	......	....
	The Scientific Fertilizer Co., Pittsburg, Pa....	Found.	3.30	8.75	7.03	7.03	2.05	.41	9.08	6.60	6.93	23.12	83
84	**Corn and Grain**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Scientific Fertilizer Co., Pittsburg, Pa....	Found.	1.85	4.90	8.06	8.06	1.40	.28	9.46	2.35	2.47	15.71	84
87	**Peerless Vegetable Grower**	Claimed.	2.73	......	8.00	......	1.00	......	9.00	5.00	......	......	....
	The Canton Fert. and Chem. Co., Canton, O..	Found.	2.80	7.42	8.31	8.31	†1.59	.79	9.90	5.34	5.61	22.13	87
88	**Peerless Corn, Wheat and Grass Grower**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	The Canton Fert. and Chem. Co., Canton, O..	Found.	2.25	5.96	7.87	7.87	†1.46	.73	9.33	*2.55	3.06	17.62	88
90	**Western Bone Black and Potash**	Claimed.	0.50	......	8.00	......	......	......	10.00	2.50	......	......	....
	The Chicago Fertilizer Co., Chicago, Ill......	Found.	0.70	1.86	7.67	7.67	1.15	.23	8.82	2.44	2.56	12.32	90
91	**Bone, Blood and Potash**	Claimed.	1.50	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Chicago Fertilizer Co., Chicago, Ill......	Found.	1.65	4.37	8.25	8.25	2.68	.54	10.93	2.16	2.27	15.43	91

93	**Ohio Vegetable Manure**	Claimed.	1.00	......	8.00	......	......	......	10.00	7.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.10	2.92	8.96	8.96	1.40	.28	10.36	7.22	7.58	19.74	93
95	**Read's Standard**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.15	3.05	8.43	8.43	1.66	.33	10.09	4.20	4.41	16.22	95
96	**Read's Leader**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.00	2.65	7.67	7.67	1.85	.37	9.52	1.14	1.20	11.89	96
97	**M. E. Wheeler's Corn Fertilizer**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	2.10	5.57	8.63	8.63	2.30	.46	10.93	2.14	2.25	16.91	97
98	**M. E. Wheeler's Royal Wheat Grower**	Claimed.	1.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.10	2.92	8.57	8.57	1.85	.37	10.42	2.26	2.37	14.23	98
99	**Potato, Truck and Tobacco Fertilizer**	Claimed.	2.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Chicago Fertilizer Co., Chicago, Ill......	Found.	2.15	5.70	7.41	7.41	3.39	.68	10.80	4.09	4.29	18.08	99
101	**Ammoniated Bone with Potash**	Claimed.	3.00	......	6.00	......	2.00	......	8.00	2.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill....	Found.	2.50	6.63	7.34	7.34	†2.05	1.02	9.39	*1.91	2.29	17.28	101
102	**Bone, Blood and Potash**	Claimed.	5.00	......	8.00	......	2.00	......	10.00	7.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill...	Found.	4.25	11.26	9.40	9.40	2.11	.42	11.51	*6.74	8.09	29.17	102
105	**Fish Guano**	Claimed.	1.00	......	9.00	......	1.00	......	10.00	2.00	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y......	Found.	1.05	2.78	8.83	8.83	2.68	.54	11.51	*2.02	2.42	14.57	105
106	**Grange Grain Grower**	Claimed.	1.00	......	11.00	......	1.00	......	12.00	2.00	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y......	Found.	1.05	2.78	10.17	10.17	3.19	.64	13.36	*1.83	2.20	15.79	106
107	**Grange Tobacco and Potato**	Claimed.	1.00	......	9.00	......	1.00	......	10.00	5.00	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y......	Found.	0.85	2.25	8.77	8.77	2.87	.57	11.64	*4.70	5.64	17.23	107
108	**Celery and Potato Special**	Claimed.	2.00	......	7.00	......	1.00	......	8.00	10.00	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y......	Found.	1.90	5.04	8.52	8.52	4.53	.91	13.05	*8.38	10.06	24.53	108
110	**Bone and Potash**	Claimed.	0.50	......	11.00	......	1.00	......	12.00	1.00	......	......	....
	The Globe Fertilizer Co., Louisville, Ky.......	Found.	0.65	1.72	13.24	13.24	0.83	.17	14.07	*0.73	.88	16.01	110

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† From animal matter.

* From sulphate.

TABLE I.—Mixed Fertilizers, with Potash—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
111	**Grain Grower**	Claimed.	0.50	......	9.00	......	1.00	......	10.00	1.50	......	......	....
	The Globe Fertilizer Co., Louisville, Ky.......	Found.	0.70	1.86	10.49	10.49	1.28	.26	11.77	*1.16	1.39	14.00	111
113	**Tankage, Bone and Potash**	Claimed.	1.50	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Hardy Packing Co., Chicago, Ill..........	Found.	1.70	4.51	8.25	8.25	2.94	.59	11.19	2.05	2.15	15.50	113
114	**Crop Producer**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Hardy Packing Co., Chicago, Ill..........	Found.	1.00	2.65	7.98	7.98	1.92	.38	9.90	0.83	.87	11.88	114
115	**Acme Complete Fertilizer**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	The Canton Fert. and Chem. Co., Canton, O..	Found.	1.15	3.05	7.16	7.16	1.34	.27	8.50	1.08	1.13	11.61	115
117	**Grange Wheat, Oats and Grass**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y......	Found.	1.15	3.05	10.22	10.22	2.11	.42	12.33	*1.06	1.27	14.96	117
118	**Grange Truck Manure**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y......	Found.	1.40	3.71	9.96	9.96	2.62	.52	12.58	*3.66	4.39	18.58	118
119	**Bradley's B. D. Sea Fowl Guano**	Claimed.	2.50	......	8.00	......	......	......	10.00	1.50	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	2.55	6.76	9.46	9.46	1.79	.36	11.25	1.54	1.62	18.20	119
122	**Dissolved Bone with Potash**	Claimed.	1.00	......	10.00	......	......	......	......	2.00	......	......	....
	George A. Bell, Wheelersburg, O..............	Found.	0.90	2.39	9.92	9.92	1.72	.34	11.64	*1.74	2.09	14.74	122
123	**Bone, Blood and Potash**	Claimed.	0.50	......	11.00	......	1.00	......	12.00	1.00	......	......	....
	The Fox Chemical Co., Louisville, Ky........	Found.	0.85	2.25	11.96	11.96	1.02	.20	12.98	*1.10	1.32	15.73	123

124	**Champion Grain Grower**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Western Chemical Co., Chicago, Ill.	Found.	1.10	2.92	11.26	11.26	2.87	.57	14.13	*0.91	1.09	15.84	124
127	**General Crop Fish Guano**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	1.08	2.86	7.98	7.98	1.92	.38	9.90	1.12	1.18	12.40	127
128	**Century**	Claimed.	2.00	......	10.00	......	2.00	......	12.00	2.00	......	......	....
	L. Frank & Sons, Zanesville, O.	Found.	2.25	5.96	10.67	10.67	1.66	.33	12.33	2.24	2.35	19.31	128
129	**Monarch**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	3.00	......	......	....
	L. Frank & Sons, Zanesville, O.	Found.	1.35	3.58	8.31	8.31	1.08	.22	9.39	3.05	3.20	15.31	129
132	**Potato Phosphate**	Claimed.	2.00	......	9.00	......	2.00	......	11.00	6.00	......	......	....
	L. Frank & Sons, Zanesville, O.	Found.	2.00	5.30	10.23	10.23	1.28	.26	11.51	*6.24	7.49	23.28	132
133	**Valley Gem Phosphate**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Queen City Fert. Co., Cincinnati, O.	Found.	1.05	2.78	10.61	10.61	1.66	.33	12.27	*1.44	1.73	15.45	133
134	**Tobacco and Potato Grower**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Queen City Fert. Co., Cincinnati, O.	Found.	1.00	2.65	10.48	10.48	0.83	.17	11.31	3.41	3.58	16.88	134
135	**Acidulated Bone**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The M. Hamm Co., Washington C. H., O.	Found.	1.15	3.05	10.87	10.87	5.05	1.01	15.92	1.33	1.40	16.33	135
139	**Grain and Grass Grower**	Claimed.	1.00	......	7.00	......	......	......	......	1.00	......	......	....
	The Buckeye Fertilizer Co., Columbus, O.	Found.	0.85	2.25	8.37	8.37	1.72	.34	10.09	1.45	1.52	12.48	139
140	**Complete Fertilizer**	Claimed.	0.50	......	8.00	......	......	......	......	2.50	......	......	....
	The Buckeye Fertilizer Co., Columbus, O.	Found.	0.55	1.46	8.18	8.18	0.70	.14	8.88	2.58	2.71	12.49	140
144	**Big Three Pure Bone Phosphate**	Claimed.	3.00	......	......	......	......	......	10.00	2.00	......	......	....
	Nelson Morris & Co., Chicago, Ill.	Found.	3.90	10.34	8.63	8.63	†2.81	1.40	11.44	*1.70	2.04	22.41	144
145	**Big Four Pure Bone Phosphate**	Claimed.	5.00	......	......	......	......	......	12.00	4.00	......	......	....
	Nelson Morris & Co., Chicago, Ill.	Found.	5.40	14.31	7.35	7.35	†4.79	2.39	12.14	*3.82	4.58	28.63	145
146	**Big Five Pure Bone Phosphate**	Claimed.	3.00	......	......	......	......	......	10.00	1.00	......	......	....
	Nelson Morris & Co., Chicago, Ill.	Found.	2.95	7.82	6.07	6.07	4.60	.92	10.67	*0.74	.89	15.70	146

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
148	**Big Eight Ammon. Acid Phosphate with Potash**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	Nelson Morris & Co., Chicago, Ill.	Found.	1.00	2.65	10.61	10.61	0.64	.13	11.25	0.96	1.01	14.40	148
149	**Peerless Superphosphate**	Claimed.	1.75	......	8.00	......	0.50	......	8.50	1.50	......	......	....
	The Canton Fert. and Chem. Co., Canton, O.	Found.	2.50	6.63	8.31	8.31	†1.53	.76	9.84	*2.57	3.08	18.78	149
153	**Bradley's Corn and Wheat Phosphate**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	2.40	6.36	8.69	8.69	2.11	.42	10.80	2.06	2.16	17.63	153
156	**Niagara's Grain and Grass Grower**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.20	3.18	7.42	7.42	1.85	.37	9.27	1.45	1.52	12.49	156
160	**Tuscarora Standard**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	2.00	......	......	....
	The Tuscarora Fertilizer Co., Chicago, Ill.	Found.	2.10	5.57	8.44	8.44	1.79	.36	10.23	2.10	2.21	16.58	160
161	**Tuscarora Fruit and Potato**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	10.00	......	......	....
	The Tuscarora Fertilizer Co., Chicago, Ill.	Found.	2.25	5.96	7.93	7.93	3.00	.60	10.93	8.91	9.36	23.85	161
162	**Big Four**	Claimed.	2.00	......	7.00	......	2.00	......	9.00	4.00	......	......	....
	The Tuscarora Fertilizer Co., Chicago, Ill.	Found.	1.80	4.77	8.82	8.82	1.46	.29	10.28	*4.28	5.14	19.02	162
164	**Corn and Wheat Grower**	Claimed.	0.50	......	8.00	......	......	......	10.00	2.50	......	......	....
	The Hardy Packing Co., Chicago, Ill.	Found.	0.55	1.46	7.60	7.60	0.90	.18	8.50	2.72	2.86	12.10	164
165	**Hamm's Special**	Claimed.	3.00	......	10.00	......	3.00	......	13.00	2.00	......	......	....
	The M. Hamm Co., Washington C. H., O.	Found.	2.55	6.76	12.03	12.03	5.75	1.15	17.78	2.49	2.61	22.55	165

166	**Soluble Vegetable Manure**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	5.00	......	......	....
	The Globe Fertilizer Co., Louisville, Ky.......	Found.	1.96	5.19	8.47	8.47	1.46	.29	9.93	*4.88	5.86	19.81	166
167	**Eagle Corn and Wheat Grower**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Globe Fertilizer Co., Louisville, Ky.......	Found.	2.25	5.96	9.02	9.02	2.17	.43	11.19	*2.12	2.54	17.95	167
169	**Corn, Oats and Wheat, Fish Guano**	Claimed.	1.50	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	1.65	4.37	8.38	8.38	2.49	.50	10.87	2.18	2.29	15.54	169
172	**Corn and Wheat Grower**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Northwestern Fertilizing Co., Chicago, Ill.	Found.	2.25	5.96	9.15	9.15	2.36	.47	11.51	2.28	2.39	17.97	172
173	**Ohio Vegetable Manure**	Claimed.	1.00	......	8.00	......	......	......	10.00	7.00	......	......	....
	The Northwestern Fertilizing Co., Chicago, Ill.	Found.	1.30	3.45	8.50	8.50	1.53	.31	10.03	7.07	7.42	19.68	173
178	**Eureka Phosphate**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Western Chemical Co., Chicago, Ill........	Found.	0.90	2.39	7.99	7.99	1.66	.33	9.65	1.27	1.33	12.04	178
179	**Harvest King**	Claimed.	1.50	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O..	Found.	1.65	4.37	8.31	8.31	2.62	.52	10.93	2.12	2.23	15.43	179
183	**Onion and Truck Fertilizer**	Claimed.	2.00	......	8.00	......	......	......	10.00	8.00	......	......	....
	The Wuichet Fertilizer Co., Dayton, O........	Found.	1.20	3.18	9.85	9.85	1.59	.32	11.44	7.98	8.38	21.73	183
184	**Garden Manure**	Claimed.	4.00	......	8.00	......	......	......	10.00	7.00	......	......	....
	The Chicago Fertilizer Co., Chicago, Ill......	Found.	3.70	9.81	9.08	9.08	1.98	.40	11.06	7.17	7.53	26.82	184
185	**Superior Superphosphate**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	The I. P. Thomas & Son Co., Philadelphia, Pa.	Found.	1.15	3.05	6.59	6.59	1.02	.20	7.61	1.10	1.16	11.00	185
190	**Pure Bone with Potash (Tobacco Special)**	Claimed.	3.00	......	12.00	......	2.00	......	14.00	3.00	......	......	....
	The Pittsburg Prov. and Pack.Co.,Pittsburg, Pa.	Found.	3.85	10.20	8.51	8.51	†6.84	3.42	15.35	*2.99	3.59	25.72	190
191	**Corn and Potato Fertilizer**	Claimed.	2.00	......	9.00	......	2.00	......	11.00	3.00	......	......	....
	The Pittsburg Prov. and Pack.Co.,Pittsburg, Pa.	Found.	2.35	6.23	6.46	6.46	†4.41	2.20	10.87	*2.66	3.19	18.08	191
192	**Keystone Fertilizer**	Claimed.	2.00	......	9.00	......	2.00	......	11.00	1.50	......	......	....
	The Pittsburg Prov. and Pack.Co.,Pittsburg, Pa.	Found.	2.05	5.43	6.14	6.14	†4.35	2.17	10.49	*1.25	1.50	15.24	192

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
197	**Bradley's Niagara Phosphate**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.10	2.92	7.29	7.29	1.66	.33	8.95	1.16	1.22	11.76	197
199	**Bradley's Complete Manure for Potatoes and Veg.**	Claimed.	4.00	......	8.00	......	......	......	10.00	7.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	4.00	10.60	8.31	8.31	1.53	.31	9.84	6.59	6.92	26.14	199
200	**Cleve. Dryer's Forest City Buckeye Phosphate..**	Claimed.	3.00	......	9.00	......	......	......	11.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	2.90	7.69	10.29	10.29	2.23	.45	12.52	2.12	2.23	20.66	200
201	**Cleveland Dryer's Ohio Seedmaker and Potash ..**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	2.25	5.96	8.44	8.44	2.05	.41	10.49	1.91	2.01	16.82	201
203	**Lake Erie Fish Guano**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	2.00	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin., O.	Found.	0.90	2.39	10.10	10.10	1.15	.23	11.25	1.83	1.92	14.64	203
205	**O. K. Fertilizer**	Claimed.	0.50	......	6.00	......	1.00	......	7.00	0.50	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin., O.	Found.	0.70	1.86	6.84	6.84	1.02	.20	7.86	*0.79	.95	9.85	205
207	**Abbott's Tobacco and Potato Special**	Claimed.	2.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O..	Found.	2.45	6.49	7.47	7.47	2.62	.52	10.09	4.32	4.54	19.02	207
208	**Fish and Potash Grain Special**	Claimed.	1.50	......	9.00	......	1.00	......	10.00	2.00	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin., O..	Found	1.60	4.24	8.12	8.12	3.13	.63	11.25	*2.16	2.59	15.58	208
209	**Record Brand**	Claimed.	1.00	......	10.00	......	2.00	......	12.00	1.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill....	Found.	0.90	2.39	11.50	11.50	0.96	.19	12.46	1.16	1.22	15.30	209

213	**Capital High Grade Guano**......................	Claimed.	1.00	......	10.00	......	1.00	......	11.00	2.00	......	......	....
	The Cincinnati Phosphate Co., Cincinnati, O...	Found.	0.95	2.52	10.04	10.04	1.34	.27	11.38	1.76	1.85	14.68	213
214	**Capital Grain and Grass Grower**.................	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Cincinnati Phosphate Co., Cincinnati, O..	Found.	1.00	2.65	10.16	10.16	1.79	.36	11.95	*1.02	1.22	14.39	214
216	**Capital Tobacco, Potato and Beet Grower**......	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Cincinnati Phosphate Co., Cincinnati, O..	Found.	0.95	2.52	9.19	9.19	0.96	.19	10.15	4.30	4.52	16.42	216
218	**Sweepstakes Bone**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	2.00	......	......	....
	The Packers' Fertilizer Co., Cincinnati, O.....	Found.	0.90	2.39	10.55	10.55	1.46	.29	12.01	1.95	2.05	15.28	218
219	**Bone Phosphate**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Packers' Fertilizer Co., Cincinnati, O.....	Found.	0.90	2.39	10.35	10.35	1.79	.36	12.14	*1.16	1.39	14.49	219
221	**Animal Guano and Potash**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Packers' Fertilizer Co., Cincinnati, O.....	Found.	0.85	2.25	9.59	9.59	0.90	.18	10.49	3.05	3.20	15.22	221
223	**Miami Valley Grain Grower**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	2.00	......	......	....
	The Queen City Fert. Co., Cincinnati, O......	Found.	0.90	2.39	10.87	10.87	1.59	.32	12.46	1.41	1.48	15.06	223
226	**Corn and Potato**	Claimed.	1.00	......	6.00	......	2.00	......	8.00	6.00	......	......	....
	Walker, Stratman & Co., Pittsburg, Pa.......	Found.	0.95	2.52	8.81	8.81	1.28	.26	10.09	4.18	4.39	15.98	226
230	**Spot Cash Fertilizer**	Claimed.	2.00	......	10.00	......	......	......	12.00	2.00	......	......	....
	The Wuichet Fertilizer Co., Dayton, O........	Found.	1.95	5.17	11.19	11.19	3.52	.70	14.71	1.50	1.58	18.64	230
231	**Miami Phosphate**	Claimed.	1.00	......	9.00	......	......	......	11.00	3.00	......	......	....
	The Wuichet Fertilizer Co., Dayton, O........	Found.	0.95	2.52	11.44	11.44	1.79	.36	13.23	2.41	2.53	16.85	231
232	**Ruby Phosphate**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Wuichet Fertilizer Co., Dayton, O........	Found.	0.90	2.39	10.99	10.99	1.08	.22	12.07	1.33	1.40	15.00	232
233	**Entire Bone Phosphate**	Claimed.	1.00	......	7.00	......	3.00	......	......	1.00	......	......	....
	The Western Union Chemical Co., Cleveland, O.	Found.	1.20	3.18	7.81	7.81	1.46	.29	9.27	1.18	1.24	12.52	233
236	**Soluble Bone**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	The E. Rauh & Sons' Fert. Co., Indianapolis, Ind.	Found.	0.85	2.25	9.97	9.97	2.17	.43	12.14	1.25	1.31	13.96	236

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
237	**Dissolved Bone and Potash**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	3.00	......	......	....
	The E. Rauh & Sons' Fert. Co., Indianapolis, Ind.	Found.	1.00	2.65	9.97	9. 7	2.74	.55	12.71	*2.72	3.26	16.43	237
238	**Our Special**	Claimed.	2.00	......	10.00	......	1.00	......	11.00	6.00	......	......	....
	The E. Rauh & Sons' Fert. Co., Indianapolis, Ind.	Found.	2.60	6.89	11.25	11.25	2.56	.51	13.81	*6.01	7.21	25.86	238
240	**German Phosphate**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	3.00	......	......	....
	The Farmers' Fertilizer Co., Indianapolis, Ind.	Found.	1.00	2.65	9.46	9.46	4.10	.82	13.56	*2.74	3.29	16.22	240
242	**Wheat Maker and Seeding Down**	Claimed.	0.50	......	8.00	......	......	......	10.00	2.50	......	......	....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	0.65	1.72	7.86	7.86	0.77	.15	8.63	2.68	2.81	12.54	242
243	**Ammoniated Bone and Potash**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	1.15	3.05	8.83	8.83	2.36	.47	11.19	4.40	4.62	16.97	243
245	**Bradley's Dissolved Bone and Potash**	Claimed.	1.25	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.80	4.77	8.24	8.24	2.43	.49	10.67	2.47	2.59	16.09	245
248	**Crocker's Potato, Hop and Tobacco Phosphate**...	Claimed.	2.50	......	8.00	......	......	......	10.00	3.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	2.60	6.89	9.46	9.46	2.05	.41	11.51	3.12	3.28	20.04	248
249	**Crocker's New Rival Phosphate**	Claimed.	1.50	......	9.00	......	......	......	11.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.70	4.51	9.85	9.85	3.07	.61	12.92	2.20	2.31	17.28	249
250	**Crocker's Universal Grain Grower**	Claimed.	1.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.50	3.98	8.57	8.57	2.36	.47	10.93	2.49	2.61	15.63	250

251	**Crocker's General Crop Phosphate**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.30	3.45	7.48	7.48	2.94	.59	10.42	1.02	1.07	12.59	251
255	**Great Eastern's Wheat Special**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	2.10	5.57	8.04	8.04	4.10	.82	12.14	2.10	2.21	16.64	255
256	**Great Eastern's Vegetable, Vine and Tobacco**....	Claimed.	2.50	......	8.00	......	......	......	10.00	3.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	2.50	6.63	9.19	9.19	3.46	.69	12.65	2.76	2.90	19.41	256
257	**Milsom's Buffalo Guano**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	0.90	2.39	9.40	9.40	3.25	.65	12.65	4.12	4.33	16.77	257
258	**Milsom's Wheat, Oats and Barley**	Claimed.	1.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.35	3.58	8.38	8.38	2.68	.54	11.06	2.55	2.68	15.18	258
259	**Milsom's Erie King**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.40	3.71	7.28	7.28	2.87	.57	10.15	1.25	1.31	12.87	259
261	**Pacific's A No. 1 Phosphate**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.40	3.71	7.23	7.23	3.00	.60	10.23	1.10	1.16	12.70	261
263	**Standard's Guano**	Claimed.	1.25	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.30	3.45	7.80	7.80	1.59	.32	9.39	2.16	2.27	13.84	263
267	**Potato Grower**	Claimed.	3.00	......	9.00	......	......	......	11.00	2.00	......	......	....
	The Northwestern Fertilizing Co., Chicago, Ill.	Found.	3.10	8.22	10.74	10.74	2.56	.51	13.30	1.95	2.05	21.52	267
270	**Anti-Trust**	Claimed.	1.00	......	9.00	......	1.00	......	10.00	1.00	......	......	....
	L. Frank & Sons, Zanesville, O.................	Found.	1.30	3.45	9.34	9.34	1.79	.36	11.13	1.27	1.33	14.48	270
273	**Detrick's Imperial Compound**	Claimed.	1.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.10	2.92	9.53	9.53	1.08	.22	10.61	2.04	2.14	14.81	273
278	**Valley Phosphate**	Claimed.	2.50	......	9.23	......	0.77	......	10.00	4.00	......	......	....
	The J. L. & H. Stadler Rd. and Ft. Co., Cleve., O.	Found.	2.25	5.96	6.65	6.65	1.02	.20	7.67	3.12	3.28	16.09	278
279	**Corn and Wheat Special**	Claimed.	1.00	......	6.24	......	1.76	......	8.00	4.00	......	......	....
	The J. L. & H. Stadler Rd. and Ft. Co., Cleve., O.	Found.	1.20	3.18	6.97	6.97	1.40	.28	8.37	2.24	2.35	12.78	279

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
281	**Herrick's Bone and Potash**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Western Union Chemical Co., Cleveland, O.	Found.	2.10	5.57	8.88	8.88	2.05	.41	10.93	1.95	2.05	16.91	281
282	**Ohio Farmer Bone Phosphate**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Western Union Chemical Co., Cleveland, O.	Found.	1.25	3.31	11.19	11.19	1.98	.40	13.17	0.93	.98	15.88	282
285	**Truckers' Manure**	Claimed.	3.00	......	8.00	......	1.00	......	9.00	6.00	......	......	....
	The Schaal-Sheldon Fertilizer Co., Erie, Pa....	Found.	2.90	7.69	9.54	9.54	1.46	.29	11.00	4.64	4.87	22.39	285
286	**Guano**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Schaal-Sheldon Fertilizer Co., Erie, Pa....	Found.	1.25	3.31	8.24	8.24	1.79	.36	10.03	4.18	4.39	16.30	286
287	**Schaal's Corn and Potato**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Schaal-Sheldon Fertilizer Co., Erie, Pa....	Found.	2.05	5.43	7.53	7.53	2.56	.51	10.09	4.28	4.49	17.96	287
289	**Pure Bone with Phosphate and Potash**	Claimed.	2.00	......	......	......	......	......	16.00	1.00	......	......	....
	The Packers' Fertilizer Co., Cincinnati, O.....	Found.	2.35	6.23	9.72	9.72	†6.07	3.03	15.79	1.74	1.83	20.81	289
290	**Celery, Onion and Potato Special**	Claimed.	1.50	......	8.00	......	......	......	......	10.00	......	......	....
	The Buckeye Fertilizer Co., Columbus, O....	Found.	1.55	4.11	8.10	8.10	1.34	.27	9.44	9.95	10.45	22.93	290
291	**Banner Phosphate**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Allegheny City Fert. Works, Allegheny, Pa.	Found.	1.10	2.92	7.93	7.93	1.15	.23	9.08	2.24	2.35	13.43	291
292	**Potato Manure**	Claimed.	3.00	......	8.00	......	2.00	......	10.00	6.00	......	......	....
	The Allegheny City Fert. Works, Allegheny, Pa.	Found.	3.15	8.35	7.09	7.09	2.30	.46	9.39	6.24	6.55	22.45	292

293	**Fruit and Root Crop Special**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	5.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	2.00	5.30	8.89	8.89	1.85	.37	10.74	*4.59	5.51	20.07	293
294	**Peerless Bone and Potash**	Claimed.	0.50	......	8.00	......	......	......	10.00	2.50	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	0.70	1.86	7.73	7.73	1.02	.20	8.75	2.46	2.58	12.37	294
296	**M. E. Wheeler's Potato Manure**	Claimed.	2.50	......	8.00	......	......	......	10.00	3.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	2.40	6.36	8.95	8.95	1.98	.40	10.93	3.45	3.62	19.33	296
301	**Ohio Vegetable Manure**	Claimed.	1.00	......	8.00	......	......	......	10.00	7.00	......	......	....
	Michigan Carbon Works, Detroit, Mich.	Found.	1.25	3.31	8.62	8.62	1.28	.26	9.90	7.17	7.53	19.72	301
303	**Empire Guano**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	0.85	2.25	7.92	7.92	1.98	.40	9.90	*0.87	1.04	11.61	303
306	**Wheat Grower**	Claimed.	2.00	......	10.00	......	1.00	......	......	2.00	......	......	....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	2.60	6.89	11.64	11.64	1.59	.32	13.23	2.04	2.14	20.99	306
307	**Vegetable and Lawn Fertilizer**	Claimed.	4.00	......	7.00	......	......	......	9.00	7.00	......	......	....
	Darling & Company, Chicago, Ill.	Found.	4.35	11.53	8.63	8.63	2.30	.46	10.93	*8.13	9.76	30.38	307
308	**Sure Winner Brand**	Claimed.	1.00	......	8.00	......	......	......	10.00	3.00	......	......	....
	Darling & Company, Chicago, Ill.	Found.	1.40	3.71	8.87	8.87	1.28	.26	10.15	3.39	3.56	16.40	308
309	**Chicago Brand**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	Darling & Company, Chicago, Ill.	Found.	2.30	6.10	9.91	9.91	2.23	.45	12.14	2.26	2.37	18.83	309
312	**Animal Bone Phosphate**	Claimed.	3.00	......	10.00	......	2.00	......	12.00	3.00	......	......	....
	G. W. Rickard, Medina, O.	Found.	2.75	7.29	10.03	10.03	4.10	.82	14.13	5.18	5.44	23.58	312
317	**Tobacco Grower**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	1.05	2.78	8.57	8.57	2.56	.51	11.13	4.42	4.64	16.50	317
318	**Champion Wheat and Corn Grower**	Claimed.	2.00	......	12.00	......	1.00	......	13.00	2.00	......	......	....
	Swift & Company, Chicago, Ill.	Found.	2.30	6.10	13.04	13.04	†4.23	2.11	17.27	*2.14	2.57	23.82	318
319	**Bone with Phosphate and Potash**	Claimed.	2.00	......	10.00	......	6.00	......	16.00	1.00	......	......	....
	The Queen City Fert. Co., Cincinnati, O.	Found.	1.65	4.37	10.48	10.48	†7.36	3.68	17.84	1.25	1.31	19.84	319

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† From animal matter.

* From sulphate.

TABLE I.—Mixed Fertilizers, with Potash—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble						
			Percent	Value	Percent	Value	Percent	Value	Total Percent	Percent	Value		
320	**Dahl's Special**	Claimed.	3.00	......	10.00	......	6.00	......	16.00	2.00	......	......	....
	Dahl & Miller, Washington C. H., O..........	Found.	3.05	8.08	10.61	10.61	†3.84	1.92	14.45	*2.31	2.77	23.38	320
321	**Grain Grower**	Claimed.	1.46	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Bash Packing Co., Ft. Wayne, Ind........	Found.	1.60	4.24	8.50	8.50	3.39	.68	11.89	*1.93	2.32	15.74	321
326	**Ammoniated Phosphate**	Claimed.	1.00	......	7.00	......	2.00	......	9.00	1.00	......	......	....
	The Tuscarora Fertilizer Co., Chicago, Ill.....	Found.	1.35	3.58	8.18	8.18	2.43	.49	10.61	1.52	1.60	13.85	326
328	**Grain and Grass Fertilizer**	Claimed.	2.00	......	10.00	......	1.00	......	11.00	2.00	......	......	....
	The International Seed Co., Rochester, N. Y..	Found.	2.45	6.49	10.43	10.43	4.60	.92	15.03	2.20	2.31	20.15	328
329	**Potato and Truck Manure**	Claimed.	1.50	......	8.00	......	1.00	......	9.00	7.00	......	......	....
	The International Seed Co., Rochester, N. Y..	Found.	1.90	5.04	8.42	8.42	4.10	.82	12.52	7.30	7.67	21.95	329
331	**Challenge Corn Grower**	Claimed.	2.50	......	8.00	......	......	......	10.00	1.50	......	......	....
	The Northwestern Fertilizing Co., Chicago, Ill.	Found.	3.00	7.95	9.66	9.66	1.53	.31	11.19	1.97	2.07	19.99	331
332	**Improved Superphosphate**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The I. P. Thomas & Son Co., Philadelphia, Pa.	Found.	1.05	2.78	9.97	9.97	0.90	.18	10.87	1.39	1.46	14.39	332
333	**Ohio Potato and Vegetable Grower**	Claimed.	1.00	......	5.00	......	1.00	......	6.00	10.00	......	......	....
	The I. P. Thomas & Son Co., Philadelphia, Pa.	Found.	0.80	2.12	5.12	5.12	1.21	.24	6.33	9.85	10.34	17.82	333
334	**High Grade Potato**	Claimed.	2.00	......	8.00	......	2.00	......	10.00	10.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill....	Found.	2.55	6.76	9.84	9.84	2.23	.45	12.07	*9.21	11.05	28.10	334

336	**Braden Formula**	Claimed.	1.00	......	11.00	......	1.00	......	12.00	3.00	......	......	....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	1.25	3.31	12.12	12.12	1.08	.22	13.20	2.85	2.99	18.64	336
340	**Universal Fertilizer**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	1.15	3.05	9.33	9.33	2.56	.51	11.89	4.06	4.26	17.15	340
341	**Potash Fertilizer**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Hardy Packing Co., Chicago, Ill.	Found.	*1.10	2.92	8.95	8.95	2.56	.51	11.51	4.13	4.34	16.72	341
342	**Cleveland Dryer's Phospho Bone**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.20	3.18	10.55	10.55	3.39	.68	13.94	1.00	1.05	15.46	342
343	**Crocker's Harvest Jewel**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	2.15	5.70	9.85	9.85	4.02	.80	13.87	2.06	2.16	18.51	343
344	**General Crop Brand**	Claimed.	1.00	......	8.00	......	......	......	10.00	6.00	......	......	....
	Darling & Company, Chicago, Ill.	Found.	1.30	3.45	9.25	9.25	1.53	.31	10.78	5.56	5.84	18.85	344
347	**Fish Guano**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Scioto Rendering Co., Columbus, O.	Found.	2.05	5.43	8.24	8.24	4.16	.83	12.40	2.82	2.96	17.46	347
348	**Four Fold**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	1.25	3.31	8.05	8.05	0.96	.19	9.01	2.62	2.75	14.30	348
349	**Grain King**	Claimed.	1.00	......	9.00	......	1.00	......	10.00	4.00	......	......	....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	1.35	3.58	9.59	9.59	0.90	.18	10.49	4.68	4.91	18.26	349
351	**Pittsburg Guano**	Claimed.	1.50	......	8.00	......	1.00	......	9.00	1.00	......	......	....
	The American Reduction Co., Pittsburg, Pa.	Found.	1.60	4.24	8.44	8.44	1.08	.22	9.52	1.49	1.56	14.46	351
352	**Century Bone and Potash**	Claimed.	1.50	......	7.00	......	1.00	......	8.00	4.00	......	......	....
	The American Reduction Co., Pittsburg, Pa.	Found.	1.50	3.98	8.31	8.31	0.96	.19	9.27	2.74	2.88	15.36	352
355	**Complete Fertilizer**	Claimed.	1.00	......	11.00	......	1.00	......	12.00	1.00	......	......	....
	The Central Ohio Fert. Co., Mt. Vernon, O.	Found.	1.25	3.31	12.09	12.09	2.30	.46	14.39	*1.08	1.30	17.16	355
358	**Pacific's Potato Phosphate**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.35	3.58	8.69	8.69	1.92	.38	10.61	4.34	4.56	17.21	358

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
360	**Big Bonanza**	Claimed.	2.00		9.00		1.00		10.00	4.00			
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	1.90	5.04	9.77	9.77	2.30	.46	12.07	3.61	3.79	19.06	360
363	**Grain and Grass Phosphate**	Claimed.	1.00		9.00		1.00		10.00	4.00			
	The Allegheny City Fert. Works, Allegheny, Pa.	Found.	1.20	3.18	9.71	9.71	0.96	.19	10.67	4.41	4.63	17.71	363
365	**Keystone Bone Phosphate**	Claimed.	1.00		8.00		1.00		9.00	1.00			
	S. M. Hess & Brother, Philadelphia, Pa.	Found.	1.10	2.92	7.80	7.80	1.85	.37	9.65	1.08	1.13	12.22	365
366	**Potato and Truck Manure**	Claimed.	3.00		8.00		1.00		9.00	7.00			
	S. M. Hess & Brother, Philadelphia, Pa.	Found.	2.80	7.42	8.88	8.88	1.92	.38	10.80	5.45	5.72	22.40	366
367	**Special Corn Manure**	Claimed.	1.00		8.00		1.00		9.00	2.00			
	S. M. Hess & Brother, Philadelphia, Pa.	Found.	1.25	3.31	8.37	8.37	1.72	.34	10.09	2.08	2.18	14.20	367
368	**Thomas' Wheat and Corn Fertilizer**	Claimed.	1.00		9.00		1.00		10.00	3.00			
	The I. P. Thomas & Son Co., Philadelphia. Pa.	Found.	1.25	3.31	8.83	8.83	0.38	.08	9.21	2.14	2.25	14.47	368
369	**Tuscarora Chief**	Claimed.	1.00		8.00		2.00		10.00	4.00			
	The Tuscarora Fertilizer Co., Chicago, Ill.	Found.	1.30	3.45	8.57	8.57	1.79	.36	10.36	3.89	4.08	16.46	369
379	**Quinnipiac's Climax Phosphate**	Claimed.	1.25		8.00				10.00	2.00			
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.20	3.18	9.19	9.19	0.90	.18	10.09	1.91	2.01	14.56	379
380	**Quinnipiac's Special Potato**	Claimed.	1.00		8.00				10.00	4.00			
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.20	3.18	8.87	8.87	1.28	.26	10.15	3.76	3.95	16.26	380

381	**Quinnipiac's Mohawk Fertilizer**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.18	3.13	8.01	8.01	1.72	.34	9.73	1.06	1.11	12.59	381
384	**Corn and Wheat Grower**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Farmers' Fertilizer Co., Indianapolis, Ind.	Found.	0.90	2.39	9.34	9.34	1.72	.34	11.06	*2.04	2.45	14.52	384
385	**Farmers' Favorite Brand**	Claimed.	3.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	Darling & Company, Chicago, Ill..............	Found.	2.90	7.69	9.13	9.13	†3.39	1.69	12.52	4.00	4.20	22.71	385
386	**Potato and Tobacco Food**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Critchfield Co., Cincinnati, O.............	Found.	1.00	2.65	9.59	9.59	1.02	.20	10.61	3.10	3.26	15.70	386
390	**Special Potato and Tobacco Fertilizer**	Claimed.	2.00	......	6.00	......	1.00	......	7.00	6.00	......	......	....
	The Kaufman Fertilizer Co., Cincinnati, O....	Found.	1.90	5.04	7.99	7.99	0.70	.14	8.69	*3.95	4.74	17.91	390
391	**Banner Crop Grower**	Claimed.	1.00	......	7.00	......	1.00	......	8.00	1.00	......	......	....
	The Kaufman Fertilizer Co., Cincinnati, O....	Found.	1.10	2.92	8.38	8.38	1.85	.37	10.23	*0.93	1.12	12.79	391
392	**Grain Special**	Claimed.	0.50	......	9.00	......	1.00	......	10.00	1.50	......	......	....
	The Fox Chemical Co., Louisville, Ky........	Found.	0.65	1.72	10.62	10.62	3.07	.61	13.69	*1.43	1.72	14.67	392
394	**Homestead Potato and Tobacco Fertilizer**	Claimed.	2.50	......	8.00	......	......	......	10.00	3.00	......	......	....
	Michigan Carbon Works, Detroit, Mich......	Found.	2.50	6.63	9.21	9.21	1.85	.37	11.06	3.35	3.52	19.73	394
395	**Williams & Clark's Good Grower Potato Phos.**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.10	2.92	9.14	9.14	1.79	.36	10.93	4.16	4.37	16.79	395
398	**Grain Grower**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	1.00	......	......	....
	The Scientific Fertilizer Co., Pittsburg, Pa....	Found.	1.15	3.05	8.83	8.83	1.53	.31	10.36	1.47	1.54	13.73	398
399	**Garden City Superphosphate**	Claimed.	2.50	......	8.00	......	......	......	10.00	1.50	......	......	....
	The Northwestern Fertilizing Co., Chicago, Ill.	Found.	2.30	6.10	9.40	9.40	1.79	.36	11.19	1.91	2.01	17.87	399
409	**Complete Plant Food**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Critchfield Co., Cincinnati, O.............	Found.	0.90	2.39	11.52	11.52	1.59	.32	13.11	0.79	.83	15.06	409
410	**Cereala**	Claimed.	0.75	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Critchfield Co., Cincinnati, O.............	Found.	0.80	2.12	9.98	9.98	1.40	.28	11.38	*1.41	1.69	14.07	410

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
411	**Bone and Phosphate Mixture**	Claimed.	2.00	......	......	......	......	......	16.00	1.00	......	......	....
	The Critchfield Co., Cincinnati, O.	Found.	1.35	3.58	10.81	10.81	†6.72	3.36	17.53	0.98	1.03	18.78	411
412	**Williams and Clark's Prolific Crop Producer**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.20	3.18	7.60	7.60	1.79	.36	9.39	1.47	1.54	12.68	412
415	**Acidulated Bone and Potash**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Northwestern Fertilizing Co., Chicago, Ill.	Found.	1.10	2.92	10.94	10.94	2.17	.43	13.11	0.85	.89	15.18	415
418	**Special Compound**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	S. M. Hess & Brother, Philadelphia, Pa.	Found.	1.15	3.05	8.64	8.64	1.72	.34	10.36	3.62	3.80	15.83	418
422	**Button Bone**	Claimed.	2.00	......	10.00	......	2.00	......	12.00	3.00	......	......	....
	The Alliance Fertilizer Co., Alliance, O.	Found.	1.80	4.77	9.07	9.07	†2.94	1.47	12.01	3.41	3.58	18.89	422
423	**Bone Black Phosphate and Potash**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Alliance Fertilizer Co., Alliance, O.	Found.	1.00	2.65	7.54	7.54	2.49	.50	10.03	2.62	2.75	13.44	423
424	**Potato and Truck Manure**	Claimed.	2.00	......	9.00	......	1.00	......	10.00	5.00	......	......	....
	The Alliance Fertilizer Co., Alliance, O.	Found.	2.05	5.43	9.02	9.02	†2.68	1.34	11.70	*4.64	5.57	21.36	424
428	**Special Vegetable Grower**	Claimed.	2.50	......	7.00	......	2.00	......	9.00	4.00	......	......	....
	The Muskingum Valley Fert. Co., Marietta, O.	Found.	1.70	4.51	7.03	7.03	2.87	.57	9.90	2.43	2.55	14.66	428
429	**Acidulated Bone Phosphate**	Claimed.	1.00	......	10.00	......	2.00	......	12.00	1.00	......	......	....
	The Muskingum Valley Fert. Co., Marietta, O.	Found.	1.55	4.11	10.54	10.54	1.53	.31	12.07	*1.00	1.20	16.16	429

431	**Wheat and Grass Manure**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	S. M. Hess & Brother, Philadelphia, Pa.	Found.	1.40	3.71	8.44	8.44	2.87	.57	11.31	2.43	2.55	15.27	431
433	**Fox Formula**	Claimed.	1.00	......	11.00	......	1.00	......	12.00	3.00	......	......	....
	The Fox Chemical Co., Louisville, Ky.	Found.	1.40	3.71	11.65	11.65	1.46	.29	13.11	*2.76	3.31	18.96	433
434	**Electric Bone Phosphate**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Chicago Fertilizer Co., Chicago, Ill.	Found.	1.20	3.18	10.04	10.04	3.71	.74	13.75	*1.16	1.39	15.35	434
438	**Truckers' Special**	Claimed.	3.00	......	8.00	......	1.00	......	9.00	9.00	......	......	....
	The Toledo Reduction and Fert. Co., Toledo, O.	Found.	3.55	9.41	8.31	8.31	2.43	.49	10.74	*9.10	10.92	29.13	438
439	**Corn and Potato**	Claimed.	3.00	......	7.00	......	1.00	......	8.00	4.00	......	......	....
	The Toledo Reduction and Fert. Co., Toledo, O.	Found.	3.05	8.08	7.67	7.67	1.28	.26	8.95	3.41	3.58	19.59	439
440	**Buckeye Wheat Grower**	Claimed.	1.50	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	The Toledo Reduction and Fert. Co., Toledo, O.	Found.	1.60	4.24	10.16	10.16	2.30	.46	12.46	0.98	1.03	15.89	440
441	**Cereal Phosphate**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	1.25	3.31	10.75	10.75	3.25	.65	14.00	*1.16	1.39	16.10	441
442	**Packers' Union Potato Manure**	Claimed.	2.50	......	8.00	......	......	......	10.00	6.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	3.05	8.08	7.73	7.73	3.46	.69	11.19	*6.38	7.66	24.16	442
443	**Packers' Union Universal Fertilizer**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.35	3.58	7.75	7.75	2.74	.55	10.49	4.76	5.00	16.88	443
444	**Packers' Union Amer. Wheat and Rye Grower**	Claimed.	1.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.35	3.58	8.82	8.82	2.56	.51	11.38	2.31	2.43	15.34	444
447	**XX Potato Grower**	Claimed.	1.00	......	6.00	......	1.00	......	7.00	6.00	......	......	....
	The Scientific Fertilizer Co., Pittsburg, Pa.	Found.	1.40	3.71	6.97	6.97	1.08	.22	8.05	3.24	3.40	14.30	447
448	**Ammoniated Food for Flowers**	Claimed.	2.43	......	4.00	......	2.00	......	6.00	2.00	......	......	....
	The Bowker Fertilizer Co., Cincinnati, O.	Found.	2.76	7.31	6.08	6.08	3.17	.63	9.25	*2.22	2.66	16.68	448
449	**Capital Special Club Formula**	Claimed.	1.00	......	12.00	......	1.00	......	13.00	3.00	......	......	....
	The Cincinnati Phosphate Co., Cincinnati, O.	Found.	1.35	3.58	12.72	12.72	1.79	.36	14.51	*3.18	3.82	20.48	449

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† From animal matter.

* From sulphate.

TABLE I.—Mixed Fertilizers, with Potash—Continued

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
450	**Royal Brand**	Claimed.	0.50	......	8.00	......	2.00	......	10.00	2.50	......	......	....
	The Armour Fertilizer Works, Chicago, Ill....	Found.	1.00	2.65	8.72	8.72	2.24	.45	10.96	2.97	3.12	14.94	450
452	**Fish Guano**	Claimed.	1.50	......	9.00	......	1.00	......	10.00	2.00	......	......	....
	The Critchfield Co., Cincinnati, O............	Found.	1.45	3.84	10.03	10.03	2.17	.43	12.20	1.77	1.86	16.16	452
454	**Raw Bone and Phosphate**	Claimed.	2.00	......	10.00	......	......	......	16.00	1.50	......	......	....
	The Wuichet Fertilizer Co., Dayton, O........	Found.	1.35	3.58	12.92	12.92	3.71	.74	16.63	1.41	1.48	18.72	454
455	**Niagara's Wheat and Corn Producer**	Claimed.	1.50	......	9.00	......	......	......	11.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.70	4.51	9.47	9.47	2.17	.43	11.64	2.24	2.35	16.76	455
458	**Akron Phosphate**	Claimed.	1.50	......	8.00	......	2.00	......	10.00	2.50	......	......	....
	The Akron Fertilizer Co., Akron, O...........	Found.	1.75	4.64	10.74	10.74	1.53	.31	12.27	2.31	2.43	18.12	458
460	**Crop Grower**	Claimed.	1.50	......	8.00	......	2.00	......	10.00	2.00	......	......	....
	The Armour Fertilizer Works, Chicago, Ill....	Found.	1.55	4.11	8.95	8.95	1.66	.33	10.61	2.30	2.42	15.81	460
462	**P. A. P. for Potatoes and Truck**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Royal Fertilizer Co., Cleveland, O........	Found.	1.50	3.98	9.98	9.98	1.59	.32	11.57	1.39	1.46	15.74	462
463	**Western Wheat Grower**	Claimed.	0.50	......	8.00	......	1.00	......	9.00	2.50	......	......	....
	The Great Western Fert. Co., Columbus, O....	Found.	0.70	1.86	8.37	8.37	1.02	.20	9.39	2.91	3.06	13.49	463
464	**York Special**	Claimed.	1.00	......	8.00	......	......	......	10.00	7.00	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O..	Found.	1.15	3.05	9.33	9.33	2.05	.41	11.38	6.93	7.28	20.07	464

465	**Martin's Truck Fertilizer**	Claimed.	4.00	......	8.00	......	......	......	10.00	7.00	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	3.85	10.20	9.15	9.15	1.72	.34	10.87	6.74	7.08	26.77	465
466	**Progress Corn and Wheat Grower**	Claimed.	1.00	......	10.00	......	1.00	......	11.00	2.00	......	......	....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	1.02	2.70	9.47	9.47	1.46	.29	10.93	2.00	2.10	14.56	466
469	**Reese's Challenge Crop Grower**	Claimed.	1.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.40	3.71	8.57	8.57	2.23	.45	10.80	2.70	2.84	15.57	469
470	**Standard's A Brand**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.30	3.45	7.42	7.42	2.81	.56	10.23	1.29	1.35	12.78	470
472	**Zell's Economizer**	Claimed.	1.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.30	3.45	8.63	8.63	2.81	.56	11.44	2.47	2.59	15.23	472
473	**Zell's Little Giant**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.15	3.05	8.70	8.70	3.13	.63	11.83	1.06	1.11	13.49	473
476	**Raw Bone and Guano Mixture**	Claimed.	2.00	......	......	......	......	......	16.00	1.00	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin., O.	Found.	1.65	4.37	10.62	10.62	†5.88	2.94	16.50	1.25	1.31	19.24	476
479	**Common Sense**	Claimed.	2.00	......	6.00	......	1.00	......	7.00	1.00	......	......	....
	The American Reduction Co., Pittsburg, Pa.	Found.	1.95	5.17	6.59	6.59	0.96	.19	7.55	1.20	1.26	13.21	479
480	**Vegetable Manure**	Claimed.	3.00	......	6.00	......	1.00	......	7.00	6.00	......	......	....
	The American Reduction Co., Pittsburg, Pa.	Found.	2.65	7.02	7.03	7.03	2.11	.42	9.14	3.74	3.93	18.40	480
481	**Bone and Potash**	Claimed.	2.00	......	......	......	......	......	10.00	2.00	......	......	....
	The Ashland Fertilizer Co., Ashland, O.	Found.	2.60	6.89	4.21	4.21	†8.44	4.22	12.65	*2.28	2.74	18.06	481
483	**Cumberland's Guano**	Claimed.	1.25	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.05	2.78	9.72	9.72	1.08	.22	10.80	2.04	2.14	14.86	483
484	**Cumberland's Seeding Down**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.10	2.92	7.86	7.86	2.17	.43	10.03	1.06	1.11	12.32	484
488	**Vegetable Manure**	Claimed.	2.50	......	9.23	......	0.77	......	10.00	8.00	......	......	....
	The J. L. & H. Stadler Rd. and Ft. Co., Cleve., O.	Found.	2.55	6.76	6.59	6.59	1.34	.27	7.93	5.39	5.66	19.28	488

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† From animal matter.

* From sulphate.

TABLE I.—Mixed Fertilizers, with Potash—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
489	**Packers' Union Animal Corn Fertilizer**	Claimed.	3.00	......	9.00	......	......	......	11.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	2.90	7.69	10.88	10.88	2.17	.43	13.05	2.12	2.23	21.23	489
490	**Clark's Cove Defiance Complete Manure**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.00	2.65	7.34	7.34	2.05	.41	9.39	1.16	1.22	11.62	490
491	**Clark's Cove Potato Phosphate**	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.15	3.05	8.31	8.31	1.59	.32	9.90	3.57	3.75	15.43	491
496	**Pioneer Seed Maker**	Claimed.	0.50	......	8.00	......	......	......	10.00	2.50	......	......	....
	The Western Chemical Co., Chicago, Ill........	Found.	0.55	1.46	7.98	7.98	0.90	.18	8.88	2.64	2.77	12.39	496
497	**Prize Taker Tobacco and Potato Special**	Claimed.	1.00	......	8.00	......	2.00	......	10.00	4.00	......	......	....
	Mace & Mansfield, Greenville, O.............	Found.	1.25	3.31	8.43	8.43	1.66	.33	10.09	4.01	4.21	16.28	497
500	**Our Leader**	Claimed.	1.00	......	8.00	......	1.00	......	10.00	4.00	......	......	....
	The Great Western Fert. Co., Columbus, O....	Found.	1.10	2.92	8.64	8.64	2.87	.57	11.51	4.07	4.27	16.40	500
503	**Vegetable Grower**	Claimed.	4.00	......	9.00	......	1.00	......	10.00	10.00	......	......	....
	Swift & Company, Chicago, Ill..............	Found.	4.50	11.93	7.47	7.47	†6.40	3.20	13.87	*9.37	11.24	33.84	503
504	**True Balance Grain and Grass Fertilizer**.......	Claimed.	1.00	......	10.00	......	1.00	......	11.00	1.00	......	......	....
	W. H. Kirk, Wellington, O..................	Found.	1.10	2.92	10.04	10.04	3.39	.68	13.43	*1.08	1.30	14.94	504
505	**Toledo Guano**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	4.00	......	......	....
	The Toledo Reduction and Fert. Co., Toledo, O.	Found.	1.10	2.92	8.69	8.69	1.92	.38	10.61	3.18	3.34	15.33	505

508	**Animal Bone and Potash**	Claimed.	1.00	......	10.00	......	2.00	......	12.00	1.00	......	......	....
	The Ohio Bone and Phosphate Co., Orrville, O.	Found.	1.10	2.92	10.68	10.68	3.58	.72	14.26	*0.85	1.02	15.34	508
509	**Special Potato Manure**	Claimed.	1.50	......	9.00	......	2.00	......	11.00	5.00	......	......	....
	The Ohio Bone and Phosphate Co., Orrville, O.	Found.	1.20	3.18	8.50	8.50	2.56	.51	11.06	5.63	5.91	18.10	509
510	**Wheat and Corn Special**	Claimed.	0.50	......	9.00	......	2.00	......	11.00	3.00	......	......	....
	The Ohio Bone and Phosphate Co., Orrville, O.	Found.	0.85	2.25	9.54	9.54	2.23	.45	11.77	3.37	3.54	15.78	510
511	**Indian Brand, Tobacco and Potato Fertilizer**....	Claimed.	3.00	......	9.00	......	1.00	......	10.00	5.00	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin., O..	Found.	2.55	6.76	11.64	11.64	1.59	.32	13.23	*3.89	4.67	23.39	511
515	**Bone Dust**	Claimed.	1.00	......	9.00	......	1.00	......	10.00	1.00	......	......	....
	The Globe Fertilizer Co., Louisville, Ky.......	Found.	1.45	3.84	9.92	9.92	0.44	.09	10.36	1.37	1.44	15.29	515
517	**Meat, Blood and Bone with Potash**	Claimed.	4.00	......	8.00	......	2.00	......	10.00	8.00	......	......	....
	Walker, Stratman & Co., Pittsburg, Pa.......	Found.	4.05	10.73	7.55	7.55	†3.25	1.62	10.80	*7.44	8.93	28.83	517
518	**Potato, Tobacco and Corn Fertilizer**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	5.00	......	......	....
	The I. P. Thomas & Son Co., Philadelphia, Pa	Found.	2.45	6.49	8.37	8.37	0.90	.18	9.27	*5.13	6.16	21.20	518
522	**All Crop Special**	Claimed.	1.50	......	10.00	......	1.00	......	11.00	1.50	......	......	....
	The Seneca Fertilizer Co., Tiffin, O..........	Found.	1.85	4.90	10.41	10.41	1.92	.38	12.33	*2.10	2.52	18.21	522
523	**John's Tax Payer**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	1.00	......	......	....
	The Seneca Fertilizer Co., Tiffin, O...........	Found.	1.35	3.58	7.93	7.93	2.30	.46	10.23	*1.33	1.60	13.57	523
525	**Ammoniated Bone Black**	Claimed.	1.50	......	8.00	......	1.00	......	9.00	2.50	......	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y......	Found.	1.30	3.45	10.10	10.10	1.85	.37	11.95	*2.55	3.06	16.98	525
527	**Ammoniated Bone Superphosphate**	Claimed.	2.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	S. M. Hess & Brother, Philadelphia, Pa.......	Found.	2.10	5.57	8.89	8.89	2.49	.50	11.38	1.95	2.05	17.01	527
528	**Pacific's Nobsque Guano**	Claimed.	1.25	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y..	Found.	1.15	3.05	7.80	7.80	1.72	.34	9.52	1.97	2.07	13.26	528
531	**Potato and Tobacco Special**	Claimed.	1.00	......	8.00	......	......	......	......	4.00	......	......	....
	George A. Bell, Wheelersburg, O.............	Found.	0.85	2.25	9.66	9.66	1.72	.34	11.38	2.80	2.94	15.19	531

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
537	**Western Brand**	Claimed.	0.50	......	7.00	......	......	......	9.00	0.50	......	......	....
	Darling & Company, Chicago, Ill.	Found.	0.80	2.12	7.41	7.41	1.92	.38	9.33	*0.76	.91	10.82	537
540	**Corn and Wheat Grower**	Claimed.	1.00	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The E. Rauh & Sons' Fert. Co., Indianapolis, Ind.	Found.	1.20	3.18	8.77	8.77	1.46	.29	10.23	*2.24	2.69	14.93	540
541	**Farmers Union Club and Grange**	Claimed.	1.00	......	7.00	......	......	......	9.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.15	3.05	7.03	7.03	2.30	.46	9.33	1.27	1.33	11.87	541
545	**Read's Gold Coin**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	2.00	5.30	7.73	7.73	2.30	.46	10.03	2.16	2.27	15.76	545
548	**Raw Bone Phosphate**	Claimed.	2.00	......	9.00	......	1.00	......	10.00	4.00	......	......	....
	The Allegheny City Fert. Works, Allegheny, Pa.	Found.	1.95	5.17	8.19	8.19	2.17	.43	10.36	3.45	3.62	17.41	548
553	**Williams & Clark's Royal Bone Phosphate**	Claimed.	1.25	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.05	2.78	7.93	7.93	1.72	.34	9.65	1.97	2.07	13.12	553
554	**Williams & Clark's Corn and Wheat Special**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.25	3.31	9.79	9.79	1.85	.37	11.64	1.29	1.35	14.82	554
567	**Harvest King**	Claimed.	1.25	......	8.00	......	1.00	......	9.00	2.00	......	......	....
	The Kaufman Fertilizer Co., Cincinnati, O.	Found.	1.05	2.78	9.01	9.01	1.66	.33	10.67	1.60	1.68	13.80	567
571	**Zell's Ammoniated Bone Superphosphate**	Claimed.	2.00	......	8.00	......	......	......	10.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	2.30	6.10	8.24	8.24	2.43	.49	10.67	2.18	2.29	17.12	571

573	**Complete Formula**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Hardy Packing Co., Chicago, Ill.	Found.	1.00	2.65	10.82	10.82	3.13	.63	13.95	*0.77	.92	15.02	573
574	**Corn and Wheat Grower**	Claimed.	1.00	......	10.00	......	2.00	......	12.00	1.00	......	......	....
	Dahl & Miller, Washington C. H., O.	Found.	1.45	3.84	9.91	9.91	3.52	.70	13.43	*1.58	1.90	16.35	574
576	**Grain Producer**	Claimed.	1.00	......	7.00	......	2.00	......	9.00	1.00	......	......	....
	The Great Western Fert. Co., Columbus, O.	Found.	1.50	3.98	7.92	7.92	1.92	.38	9.84	1.20	1.26	13.54	576
578	**Crocker's Wheat and Corn Phosphate**	Claimed.	2.50	......	8.00	......	......	......	10.00	1.50	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	2.25	5.96	8.25	8.25	1.98	.40	10.23	1.77	1.86	16.47	578
581	**Buckeye**	Claimed.	2.50	......	8.00	......	2.00	......	10.00	3.00	......	......	....
	The Marietta Bone and Phos. Co., Marietta, O.	Found.	2.05	5.43	5.37	5.37	†3.13	1.56	8.50	3.07	3.22	15.58	581
584	**Corn, Oats and Wheat Grower**	Claimed.	1.50	......	8.00	......	2.00	......	10.00	2.00	......	......	....
	The Marietta Bone and Phos. Co., Marietta, O.	Found.	2.10	5.57	4.28	4.28	†4.60	2.30	8.88	1.45	1.52	13.67	584
588	**Capital Bone and Phos. Mixture, Wheat Special.**	Claimed.	2.00	......	......	......	......	......	16.00	1.00	......	......	....
	The Cincinnati Phosphate Co., Cincinnati, O.	Found.	2.50	6.63	9.34	9.34	†3.58	1.79	12.92	1.14	1.20	18.96	588
591	**Quinnipiac's Corn and Wheat Grower**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.40	3.71	11.25	11.25	3.39	.68	14.64	0.98	1.03	16.67	591
597	**Half and Half**	Claimed.	2.00	......	......	......	......	......	16.00	1.00	......	......	....
	The Kaufman Fertilizer Co., Cincinnati, O.	Found.	2.35	6.23	10.75	10.75	†5.68	2.84	16.43	0.87	.91	20.73	597
598	**Soluble Bone**	Claimed.	1.25	......	10.00	......	2.00	......	12.00	1.50	......	......	....
	The Currie Fertilizer Co., Louisville, Ky.	Found.	1.90	5.04	9.40	9.40	1.79	.36	11.19	1.64	1.72	16.52	598
602	**Farmers' Union Standard Phosphate**	Claimed.	1.50	......	9.00	......	......	......	11.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	1.70	4.51	8.31	8.31	2.49	.50	10.80	2.06	2.16	15.48	602
605	**Raw Bone and Potash**	Claimed.	2.00	......	8.00	......	8.00	......	16.00	3.00	......	......	....
	The Alliance Fertilizer Co., Alliance, O.	Found.	2.35	6.23	8.64	8.64	8.69	1.74	17.33	3.28	3.44	20.05	605
608	**Milsom's Buffalo Fertilizer**	Claimed.	2.50	......	8.00	......	......	......	10.00	1.50	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	3.00	7.95	9.85	9.85	1.72	.34	11.57	1.81	1.90	20.04	608

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† From animal matter.

* From sulphate.

TABLE I.—MIXED FERTILIZERS, WITH POTASH—Concluded.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found	Ammonia		Phosphoric Acid					Potash		Total Value	Record Number
					Available		Insoluble		Total Percent				
			Percent	Value	Percent	Value	Percent	Value		Percent	Value		
609	**Iron City**	Claimed.	3.00	......	9.00	......	1.00	......	10.00	2.00	......	......	....
	The American Reduction Co., Pittsburg, Pa.	Found.	2.40	6.36	8.63	8.63	2.68	.54	11.31	1.33	1.40	16.93	609
611	**Special Manure**	Claimed.	1.00	......	12.00	......	2.00	......	14.00	3.00	......	......	....
	The Ohio Bone and Phosphate Co., Orrville, O.	Found.	1.90	5.04	13.04	13.04	2.11	.42	15.15	2.10	2.21	20.71	611
619	**Maumee Valley Fertilizer**	Claimed.	7.55	......	11.18	......	2.05	......	13.23	0.35	......	......	....
	N. Rassel & Co., Toledo, O.	Found.	8.05	21.33	8.95	8.95	†4.35	2.17	13.30	0.64	.67	33.12	619
621	**Potato and Truck Special**	Claimed.	3.00	......	8.00	......	2.00	......	10.00	5.00	......	......	....
	The Marietta Bone and Phos. Co., Marietta, O.	Found.	2.95	7.82	9.58	9.58	2.94	.59	12.52	*4.99	5.99	23.98	621
623	**World of Good Superphosphate**	Claimed.	2.50	......	8.00	......	......	......	10.00	1.50	......	......	....
	The Packers' Fertilizer Asso., Chicago, Ill.	Found.	2.85	7.55	9.27	9.27	2.87	.57	12.14	1.79	1.88	19.27	623
624	**Ammoniated Bone and Potash**	Claimed.	1.00	......	10.00	......	......	......	12.00	1.00	......	......	....
	The Packers' Fertilizer Asso., Chicago, Ill.	Found.	1.35	3.58	11.12	11.12	1.59	.32	12.71	1.25	1.31	16.33	624
628	**High Grade Superphosphate of Bone**	Claimed.	1.50	......	9.00	......	2.00	......	11.00	2.00	......	......	....
	D. Blocher & Co., Gettysburg, Pa.	Found.	1.25	3.31	10.67	10.67	1.66	.33	12.33	1.95	2.05	16.36	628
629	**Mixed Fertilizer with Potash**	Claimed.	1.36	......	4.79	......	4.07	......	8.86	0.42	......	......	....
	John Ruehle, Defiance, O.	Found.	1.70	4.51	6.23	6.23	4.09	.82	10.32	0.84	.88	12.44	629

† From animal matter

* From sulphate.

TABLE II.—MIXED FERTILIZERS, WITHOUT POTASH.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia		Phosphoric Acid					Total Value	Record Number
					Available		Insoluble		Total Percent		
			Percent	Value	Percent	Value	Percent	Value			
85	**Bone and Meat**	Claimed.	4.00	......	......	......	......	......	16.00	......	....
	The Scientific Fertilizer Co., Pittsburg, Pa.	Found.	3.90	10.34	7.62	7.62	8.05	1.61	15.67	19.57	85
187	**Wheat Special**	Claimed.	0.50	......	12.00	......	......	......	......	......	....
	The I. P. Thomas & Son Co., Philadelphia, Pa.	Found.	0.95	2.52	12.34	12.34	0.77	.15	13.11	15.01	187
217	**Bonus, a Humus Phosphate**	Claimed.	0.25	......	14.00	......	1.00	......	15.00	......	....
	The Cincinnati Phosphate Co., Cincinnati, O.	Found.	0.25	.66	12.93	12.93	1.46	.29	14.39	13.88	217
222	**Phosphate with Humus**	Claimed.	0.25	......	14.00	......	1.00	......	15.00	......	....
	The Packers' Fertilizer Co., Cincinnati, O.	Found.	0.20	.53	12.80	12.80	1.40	.28	14.20	13.61	222
298	**Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	......	....
	The Buckeye Fertilizer Co., Columbus, O.	Found.	1.50	3.98	10.63	10.63	11.44	2.29	22.07	16.90	298
345	**Farmers' Favorite**	Claimed.	7.50	......	5.57	......	0.83	......	6.40	......	....
	The G. E. Howell Provision Co., Newark, O.	Found.	7.55	20.01	6.07	6.07	3.58	.72	9.65	26.80	345
401	**Acidulated Bone Meal**	Claimed.	2.00	......	......	......	......	......	18.00	......	....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	2.45	6.49	11.01	11.01	11.89	2.38	22.90	19.88	401
459	**Hercules**	Claimed.	8.22	......	......	......	......	......	22.05	......	....
	Thomas Morrison & Co., Cincinnati, O.	Found.	8.95	23.72	6.65	6.65	2.74	.55	9.39	30.92	459
547	**Fine Ground Bone**	Claimed.	2.00	......	......	......	......	......	20.00	......	....
	The American Reduction Co., Pittsburg, Pa.	Found.	2.20	5.83	12.35	12.35	8.50	1.70	20.85	19.88	547

TABLE II.—MIXED FERTILIZERS, WITHOUT POTASH—Concluded.

Record Number.	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia		Phosphoric Acid					Total Value	Record Nnmber
					Available		Insoluble				
			Percent	Value	Percent	Value	Percent	Value	Tota. Percent		
552	**Butchers' Bone Meal**	Claimed.	4.00	....	....	....	....	....	16.00	....	....
	The Allegheny City Fert. Works, Allegheny, Pa.	Found.	2.75	7.29	6.05	6.05	10.51	2.10	16.56	15.44	552
599	**Pleasant Valley**	Claimed.	1.00	....	16.00	....	1.00	....	17.00	....	....
	The Harveysburg Fert. Co., Harveysburg, O...	Found.	0.75	1.99	15.74	15.74	2.68	.54	18.42	18.27	599
612	**Bone and Meat**................................	Claimed.	2.50	....	9.23	....	0.77	....	10.00	....	....
	The J. L. & H. Stadler Rd. and Ft. Co, Cleve., O.	Found.	2.50	6.63	8.95	8.95	2.62	.52	11.57	16.10	612
626	**Acidulated Bone**	Claimed.	2.00	....	....	....	....	....	12.00	....	....
	Geo. A. Bell, Wheelersburg, O...............	Found.	2.40	6.36	10.05	10.05	7.48	1.50	17.53	17.91	626

TABLE III.—DISSOLVED BONE.

Record Number.	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia		Phosphoric Acid					Total Value	Record Number
					Available		Insoluble		Total Percent		
			Percent	Value	Percent	Value	Percent	Value			
4	**Peerless Bone Meal**	Claimed.	2.75	......	......	......	......	......	22.00	......	....
	The Canton Fert. and Chem. Co., Canton, O...	Found.	3.60	9.54	13.32	13.32	†8.75	4.37	22.07	27.23	4
109	**Bone Meal**	Claimed.	3.00	......	......	......	......	......	25.00	......	....
	The Buffalo Fertilizer Co., Buffalo, N. Y.	Found.	3.15	8.35	14.21	14.21	†9.46	4.73	23.67	27.29	109
121	**Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	......	....
	The Bowker Fertilizer Co., Cincinnati, O	Found.	2.45	6.49	11.52	11.52	†9.12	4.56	20.64	22.57	121
143	**Big Two Pure Bone Meal**	Claimed.	2.50	......	......	......	......	......	28.00	......	....
	Nelson Morris & Co., Chicago, Ill	Found.	3.00	7.95	15.95	15.95	†12 71	6.35	28.66	30.25	143
193	**Guano Fertilizer**	Claimed.	2.00	......	9.00	......	2.00	......	11.00	......	....
	The Pittsburg Prov. and Pkg. Co., Pittsburg, Pa.	Found.	2.05	5.43	6.96	6.96	†4.10	2.05	11.06	14.44	193
195	**Grange Ground Bone**	Claimed.	3.00	......	......	......	......	......	23.00	......	....
	The Buffalo Fertilizer Co., Buffalo, N Y	Found.	3.85	10.20	13.57	13.57	†8.82	4.41	22.39	28.18	195
196	**A Ground Bone**	Claimed.	1.50	......	......	......	......	......	25.00	......	....
	The Amer. Agri. Chem. Co., New York, N. Y. .	Found.	1.50	3.98	13.51	13.51	†9.84	4.92	23.35	22.41	196
204	**Ground Bone**	Claimed.	3.00	......	......	......	......	......	20.00	......	....
	The Jarecki Chem. Co., Sandusky and Cin'ti, O..	Found.	2.63	6.97	14.40	14.40	†9.19	4.59	23.59	25.96	204

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† From animal matter.

TABLE III—DISSOLVED BONE—Concluded.

Record Number.	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia		Phosphoric Acid					Total Value	Record Nnmber.
					Available		Insoluble				
			Percent	Value	Percent	Value	Percent	Value	Total Percent		
244	**Ground Bone**	Claimed.	3.00	......	......	......	......	......	20.00	......	....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	3.75	9.94	10.43	10.43	†8.31	4.15	18.74	24.52	244
266	**Bone and Meat**	Claimed.	4.00	......	......	......	......	......	16.00	......	....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	4.15	11.00	6.21	6.21	†8.69	4.34	14.90	21.55	266
275	**Ground Bone**	Claimed.	3.00	......	......	......	......	......	20.00	......	....
	Michigan Carbon Works, Detroit, Mich.	Found.	2.25	5.96	12.99	12.99	†11.06	5.53	24.05	24.48	275
302	**Pure Ground Bone**	Claimed.	3.00	......	......	......	......	......	20.00	......	....
	The Northwestern Fertilizing Co., Chicago, Ill.	Found.	3.50	9.28	8.64	8.64	†14.26	7.13	22.90	25.05	302
310	**Two and Twenty Bone**	Claimed.	2.00	......	......	......	......	......	18.00	......	....
	Darling & Company, Chicago, Ill.	Found.	2.65	7.02	9.15	9.15	†9.97	4.98	19.12	21.15	310
322	**Capital Ground Bone**	Claimed.	3.00	......	......	......	......	......	20.00	......	....
	The Cincinnati Phosphate Co., Cincinnati, O.	Found.	2.50	6.63	12.09	12.09	†16.63	8.31	28.72	27.03	322
370	**Tuscarora Steamed Bone**	Claimed.	2.00	......	......	......	......	......	20.00	......	....
	The Tuscarora Fertilizer Co., Chicago, Ill	Found.	1.90	5.04	12.47	12.47	†10.88	5.44	23.35	22.95	370
372	**Desiccated Bone**	Claimed.	1.50	......	......	......	......	......	25.00	......	....
	Michigan Carbon Works, Detroit, Mich.	Found.	1.65	4.37	13.64	13.64	†13.36	6.68	27.00	24.69	372
406	**Bone Meal**	Claimed.	3.00	......	......	......	......	......	20.00	......	....
	The Packers' Fertilizer Co., Cincinnati, O.	Found.	2.15	5.70	14.40	14.40	†13.43	6.71	27.83	26.81	406

461	**Pure Bone**	Claimed.	2.50	......	......	......	......	......	22.00	......	....
	Joslin, Schmidt & Co., Cincinnati, O.	Found.	4.00	10.60	15.11	15.11	†8.88	4.44	23.99	30.15	461
475	**Pure Raw Bone Meal**	Claimed.	4.00	......	......	......	......	......	22.00	......	....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	4.90	12.99	10.69	10.69	†11.44	5.72	22.13	29.40	475
478	**Chicago Bone Meal**	Claimed.	1.50	......	......	......	......	......	25.00	......	....
	The Packers' Fertilizer Association, Chicago, Ill.	Found.	1.45	3.84	13.83	13.83	†12.27	6.13	26.10	23.80	478
521	**Acidulated Pure Bone**	Claimed.	3.00	......	......	......	......	......	20.00	......	....
	The Seneca Fertilizer Co., Tiffin, O.	Found.	4.35	11.53	8.71	8.71	†11.31	5.65	20.02	25.89	521
572	**Half and Half**	Claimed.	2.25	......	6.00	......	......	......	14.00	......	....
	The Western Union Chemical Co., Cleveland, O.	Found.	2.45	6.49	5.88	5.88	†4.73	2.36	10.61	14.73	572
580	**Pure Raw Bone**	Claimed.	4.50	......	......	......	......	......	20.00	......	....
	The Marietta Bone and Phos. Co., Marietta, O..	Found.	4.35	11.53	9.34	9.34	†11.51	5.75	20.85	26.62	580
582	**Bone Meal**	Claimed.	3.20	......	......	......	......	......	21.00	......	....
	The Muskingum Valley Fert. Co., Marietta, O...	Found.	3.80	10.07	10.69	10.69	†9.65	4.82	20.34	25.58	582
586	**Tiger Bone Meal**	Claimed.	1.50	......	......	......	......	......	25.00	......	....
	The Western Union Chemical Co., Cleveland, O.	Found.	1.45	3.84	11.46	11.46	†12.98	6.49	24.44	21.79	586
595	**Ammoniated Bone**	Claimed.	6.00	......	......	......	......	......	17.00	......	....
	Swift & Company, Chicago, Ill.	Found.	5.80	15.37	9.47	9.47	†9.01	4.50	18.48	29.34	595
596	**Pure Steamed Bone**	Claimed.	2.00	......	......	......	......	......	20.00	......	....
	Dahl & Miller, Washington C. H., O.	Found.	2.60	6.89	8.91	8.91	†10.15	5.07	19.06	20.87	596
601	**Crescent Butchers' Ground Bone**	Claimed.	3.00	......	......	......	......	......	16.00	......	....
	The Pittsburg Prov. and Pkg. Co., Pittsburg, Pa.	Found.	3.60	9.54	5.37	5.37	†6.01	3.00	11.38	17.91	601
606	**Akron Bone Meal**	Claimed.	2.50	......	19.00	......	2.00	......	21.00	......	....
	The Akron Fertilizer Co., Akron, O.	Found.	3.05	8.08	10.81	10.81	†10.49	5.24	21.30	24.13	606
613	**Pure Bone Meal**	Claimed.	3.00	......	......	......	......	......	24.00	......	....
	The J. L. & H. Stadler Rd. and Ft. Co., Cleve., O.	Found.	2.75	7.29	15.23	15.23	†9.72	4.86	24.95	27.38	613

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† From animal matter.

TABLE IV.—ROCK PHOSPHATE.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid: Available Percent	Phosphoric Acid: Available Value	Phosphoric Acid: Insoluble Percent	Phosphoric Acid: Total Percent	Total Value	Record Number
3	**Great Eastern's Dissolved Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	14.01	14.01	1.53	15.54	14.01	3
26	**Economy**	Claimed.	10.00	....	1.00	11.00	....	.....
	The M. Hamm Co., Washington C. H., O.	Found.	11.45	11.45	3.58	15.03	11.45	26
31	**Eureka Phosphate**	Claimed.	10.00	....	1.00	11.00	....	.....
	The Farmers' Fertilizer Co., Indianapolis, Ind.	Found.	10.42	10.42	2.23	12.65	10.42	31
34	**C. O. D. Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Jarecki Chemical Co., Sandusky and Cincinnati, O.	Found.	15.42	15.42	2.68	18.10	15.42	34
39	**Alkaline Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	15.03	15.03	2.30	17.33	15.03	39
40	**Extra Superphosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Buckeye Fertilizer Co., Columbus, O.	Found.	15.22	15.22	2.56	17.78	15.22	40
44	**Red Line Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	15.22	15.22	1.85	17.07	15.22	44
47	**Security Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	The Hardy Packing Co., Chicago, Ill.	Found.	15.42	15.42	2.23	17.65	15.42	47
49	**Bradley's Dissolved Bone, Justice Brand**	Claimed.	12.00	....	....	14.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	11.89	11.89	2.62	14.51	11.89	49

55	**Star Phosphate**	Claimed.	14.00	....	2.00	16.00	....	.....
	The Armour Fertilizer Works, Chicago, Ill	Found.	15.99	15.99	0.32	16.31	15.99	55
60	**Helpmate**	Claimed.	12.00	....	1.00	13.00	....	.....
	Walker, Stratman & Co., Pittsburg, Pa	Found.	11.70	11.70	1.53	13.23	11.70	60
63	**Dissolved Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The Western Chemical Co., Chicago, Ill	Found.	13.56	13.56	2.56	16.12	13.56	63
64	**Diamond S. Phosphate**	Claimed.	10.00	....	1.00	11.00	....	.....
	Swift & Company, Chicago, Ill	Found.	11.51	11.51	1.98	13.49	11.51	64
66	**Garden City Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	Swift & Company, Chicago, Ill	Found.	15.42	15.42	2.68	18.10	15.42	66
76	**High Grade Phosphate**	Claimed.	16.00	....	1.00	17.00	....	.....
	The Seneca Fertilizer Co., Tiffin, O	Found.	16.76	16.76	1.28	18.04	16.76	76
80	**Dissolved Bone**	Claimed.	12.00	....	1.00	13.00	....	.....
	The Scientific Fertilizer Co., Pittsburg, Pa	Found.	11.45	11.45	1.34	12.79	11.45	80
92	**Soluble Bone**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Buffalo Fertilizer Co., Buffalo, N. Y	Found.	15.03	15.03	2.43	17.46	15.03	92
100	**No. 1 Acid Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The Chicago Fertilizer Co., Chicago, Ill	Found.	8.76	8.76	4.99	13.75	8.76	100
104	**Grange Acid Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Buffalo Fertilizer Co., Buffalo, N Y	Found.	14.27	14.27	2.74	17.01	14.27	104
120	**Dissolved Bone Phosphate**	Claimed.	10.00	....	2.00	12.00	....	.....
	The Bowker Fertilizer Co., Cincinnati, O	Found.	10.36	10.36	2.62	12.98	10.36	120
125	**Soluble Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The Western Chemical Co., Chicago, Ill	Found.	11.07	11.07	2.62	13.69	11.07	125
130	**Electric**	Claimed.	10.00	....	1.00	11.00	....	.....
	L. Frank & Sons, Zanesville, O	Found.	11.12	11.12	1.28	12.40	11.12	130

TABLE IV.—ROCK PHOSPHATE—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid				Total Value	Record Number
			Available		Insoluble	Total Percent		
			Percent	Value	Percent			
137	**Dissolved Bone**	Claimed.	16.00	....	1.00	17.00	....	.....
	The M. Hamm Co., Washington C. H., O.	Found.	18.10	18.10	2.11	20.21	18.10	137
138	**Soluble Bone**	Claimed.	14.00	....	1.00	15.00	....	.....
	The M. Hamm Co., Washington C. H., O.	Found.	12.60	12.60	4.16	16.76	12.60	138
150	**Peerless Dissolved Bone**	Claimed.	12.00	....	1.00	13.00	....	.....
	The Canton Fertilizer and Chemical Co., Canton, O.	Found.	14.96	14.96	1.21	16.17	14.96	150
152	**Acid Phosphate**	Claimed.	8.00	....	1.00	9.00	....	.....
	The Canton Fertilizer and Chemical Co., Canton, O.	Found.	11.31	11.31	0.83	12.14	11.31	152
154	**Cleveland Dryer's XXX Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	15.15	15.15	1.28	16.43	15.15	154
155	**Detrick's Monarch Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	9.72	9.72	3.07	12.79	9.72	155
157	**Pacific's Acid Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	9.53	9.53	2.74	12.27	9.53	157
158	**M. E. Wheeler's Wisdom's Choice**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	10.81	10.81	2.62	13.43	10.81	158
159	**Acid Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	14.27	14.27	1.34	15.61	14.27	159

168	**Superior Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	10.30	10.30	2.49	12.79	10.30	168
171	**Diamond Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	The Chicago Fertilizer Co., Chicago, Ill.	Found.	15.23	15.23	2.17	17.40	15.23	171
175	**Soluble Dissolved Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The Northwestern Fertilizing Co., Chicago, Ill.	Found.	15.02	15.02	2.05	17.07	15.02	175
177	**Quick Acting Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The Northwestern Fertilizing Co., Chicago, Ill	Found.	10.36	10.36	2.81	13.17	10.36	177
180	**Hercules Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	The Abbott & Martin Rendering Co., Columbus, O.	Found.	15.04	15.04	2.23	17.27	15.04	180
181	**Great Eastern's Columbus Special**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	11.07	11.07	2.49	13.56	11.07	181
182	**M. E. Wheeler's Unammoniated Wheat Grower**	Claimed	12.00	....	....	14.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	13.43	13.43	1.92	15.35	13.43	182
188	**S. C. Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	The I. P. Thomas & Son Co., Philadelphia, Pa.	Found.	15.35	15.35	0.38	15.73	15.35	188
189	**Dissolved Phosphate**	Claimed.	10.00	....	1.00	11.00	....	.....
	The I. P. Thomas & Son Co., Philadelphia, Pa.	Found.	11.03	11.03	1.04	12.07	11.03	189
194	**Acid Phosphate**	Claimed.	13.00	....	1.00	14.00	....	.....
	The Pittsburg Provision and Packing Co., Pittsburg, Pa.	Found.	14.52	14.52	2.17	16.69	14.52	194
198	**Bradley's Acid Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	10.41	10.41	1.66	12.07	10.41	198
202	**Cleveland Dryer's Horsehead Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	9.72	9.72	3.07	12.79	9.72	202
206	**Tennessee Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The Abbott & Martin Rendering Co., Columbus, O.	Found.	9.90	9.90	2.68	12.58	9.90	206

TABLE IV.—Rock Phosphate—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid				Total Value	Record Number
			Available		Insoluble			
			Percent	Value	Percent	Total Percent		
211	**Cereal Phosphate**	Claimed.	10.00		2.00	12.00		
	The Armour Fertilizer Works, Chicago, Ill.	Found.	10.87	10.87	0.64	11.51	10.87	211
225	**High Grade Wheat and Grass Grower**	Claimed.	14.00		1.00	15.00		
	The Queen City Fertilizer Co., Cincinnati, O.	Found.	14.27	14.27	1.72	15.99	14.27	225
228	**International Phosphate**	Claimed.	14.00			16.00		
	The Western Union Chemical Co., Cleveland, O.	Found.	15.15	15.15	0.77	15.92	15.15	228
229	**Bull Dog Phosphate**	Claimed.	10.00			12.00		
	The Western Union Chemical Co., Cleveland, O.	Found.	10.16	10.16	2.17	12.33	10.16	229
234	**Ideal Phosphate**	Claimed.	10.00		1.00	11.00		
	The E. Rauh & Sons Fertilizer Co., Indianapolis, Ind.	Found.	9.90	9.90	2.62	12.52	9.90	234
235	**Red Star Phosphate**	Claimed.	14.00		1.00	15.00		
	The E. Rauh & Sons Fertilizer Co., Indianapolis, Ind.	Found.	15.68	15.68	1.59	17.27	15.68	235
239	**Wheat and Oats Special**	Claimed.	14.00		1.00	15.00		
	The Farmers' Fertilizer Co., Indianapolis, Ind.	Found.	15.29	15.29	1.21	16.50	15.29	239
247	**Bradley's Soluble Dissolved Bone**	Claimed.	14.00			16.00		
	The American Agricultural Chemical Co., New York, N. Y.	Found.	15.15	15.15	0.77	15.92	15.15	247
252	**Crocker's Dissolved Bone**	Claimed.	14.00			16.00		
	The American Agricultural Chemical Co., New York, N. Y.	Found.	15.99	15.99	0.64	16.63	15.99	252

253	**Crocker's Erie Fertilizer** The American Agricultural Chemical Co., New York, N. Y.	Claimed.	12.00	....	....	14.00	....	.....
		Found.	13.37	13.37	1.85	15.22	13.37	253
254	**Crocker's Economical Phosphate** The American Agricultural Chemical Co., New York, N. Y.	Claimed.	10.00	....	....	12.00	....	.....
		Found.	9.97	9.97	3.33	13.30	9.97	254
260	**Milsom's Dissolved Bone** The American Agricultural Chemical Co., New York, N. Y.	Claimed.	12.00	....	....	14.00	....	.....
		Found.	12.60	12.60	2.43	15.03	12.60	260
262	**Pacific's Dissolved Bone Phosphate of Lime** The American Agricultural Chemical Co., New York, N. Y.	Claimed.	14.00	....	....	16.00	....	.....
		Found.	13.75	13.75	3.71	17.46	13.75	262
264	**Standard's Dissolved Bone** The American Agricultural Chemical Co., New York, N. Y.	Claimed.	14.00	....	....	16.00	....	.....
		Found.	14.97	14.97	1.28	16.25	14.97	264
265	**Standard's Acid Phosphate** The American Agricultural Chemical Co., New York, N. Y.	Claimed.	10.00	....	....	12.00	....	.....
		Found.	9.02	9.02	3.96	12.98	9.02	265
271	**Big Seven High Grade Acid Phosphate** Nelson Morris & Co., Chicago, Ill.	Claimed.	10.00	....	1.00	11.00	....	.....
		Found.	10.80	10.80	0.26	11.06	10.80	271
272	**Wheat Special** The M. Hamm Co., Washington C. H., O.	Claimed.	18.00	....	2.00	20.00	....	.....
		Found.	19.06	19.06	1.21	20.27	19.06	272
274	**Zell's Dissolved Bone** The American Agricultural Chemical Co., New York, N. Y.	Claimed.	14.00	....	....	16.00	....	.....
		Found.	14.84	14.84	1.85	16.69	14.84	274
276	**Acid Phosphate** The Globe Fertilizer Co., Louisville, Ky.	Claimed.	14.00	....	1.00	15.00	....	.....
		Found.	13.94	13.94	2.05	15.99	13.94	276
280	**Dissolved Bone** The J. L. & H. Stadler Rend. and Fert. Co., Cleveland, O.	Claimed.	5.49	....	2.72	8.21	....	.....
		Found.	6.78	6.78	4.96	11.74	6.78	280
300	**Wolverine Phosphate** Michigan Carbon Works, Detroit, Mich.	Claimed.	10.00	....	....	12.00	....	.....
		Found.	10.10	10.10	3.46	13.56	10.10	300
305	**Superphosphate** The Buckeye Fertilizer Co., Columbus, O.	Claimed.	10.00	....	1.00	....	....	.....
		Found.	9.84	9.84	2.74	12.58	9.84	305

TABLE IV.—ROCK PHOSPHATE—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid				Total Value	Record Number
			Available		Insoluble	Total Percent		
			Percent	Value	Percent			
311	**High Grade Acid Phosphate**	Claimed.	14.00	....	....	....	....	.....
	Darling & Company, Chicago, Ill........	Found.	15.09	15.09	0.90	15.99	15.09	311
314	**Dissolved Bone Phosphate**	Claimed.	16.00	....	2.00	18.00	....	.....
	G. W. Rickard, Medina, O........	Found.	16.57	16.57	2.17	18.74	16.57	314
325	**Acid Phosphate**	Claimed.	14.00	....	2.00	16.00	....	.....
	The Tuscarora Fertilizer Co., Chicago, Ill........	Found.	15.09	15.09	1.28	16.37	15.09	325
350	**Soluble Bone**	Claimed.	14.00	....	2.00	16.00	....	.....
	The Bowker Fertilizer Co., Cincinnati, O........	Found.	16.38	16.38	2.49	18.87	16.38	350
353	**Acid Phosphate**	Claimed.	14.00	....	2.00	16.00	....	.....
	The Central Ohio Fertilizer Co., Mt. Vernon, O........	Found.	14.90	14.90	3.58	18.48	14.90	353
359	**Read's Dissolved Bone**	Claimed.	12.00	....	....	14.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	13.05	13.05	1.72	14.77	13.05	359
371	**Acid Phosphate**	Claimed.	12.00	....	....	14.00	....	.....
	Michigan Carbon Works, Detroit, Mich........	Found.	12.08	12.08	2.43	14.51	12.08	371
373	**Milsom's Acid Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	15.16	15.16	0.70	15.86	15.16	373
376	**Acid Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Fox Chemical Co., Louisville, Ky........	Found.	14.71	14.71	1.28	15.99	14.71	376

377	**A. A. Acid Phosphate**	Claimed.	10.00	....	1.00	11.00	....	.....
	The Fox Chemical Co., Louisville, Ky.	Found.	10.61	10.61	1.53	12.14	10.61	377
382	**M. E. Wheeler's Electrical Dissolved Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	15.24	15.24	0.57	15.81	15.24	382
397	**Zell's Dissolved S. C. Phosphate**	Claimed.	12.00	....	....	14.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	13.56	13.56	3.13	16.69	13.56	397
400	**Soluble Bone Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	S. M. Hess & Brother, Philadelphia, Pa.	Found.	15.41	15.41	1.02	16.43	15.41	400
403	**Capital Wheat Grower**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Cincinnati Phosphate Co., Cincinnati, O.	Found.	14.39	14.39	2.66	17.05	14.39	403
407	**Acidulated Bone**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Packers' Fertilizer Co., Cincinnati, O.	Found.	13.43	13.43	1.92	15.35	13.43	407
408	**Standard Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Critchfield Co., Cincinnati, O.	Found.	15.42	15.42	1.85	17.27	15.42	408
413	**Williams & Clark's Dissolved Bone**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	9.71	9.71	2.30	12.01	9.71	413
414	**Williams & Clark's Acorn Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	14.58	14.58	2.05	16.63	14.58	414
416	**Reese's Elm Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	15.17	15.17	1.59	16.76	15.17	416
425	**Farmers' Friend Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Alliance Fertilizer Co., Alliance, O.	Found.	11.60	11.60	4.16	15.76	11.60	425
427	**Enterprise**	Claimed.	16.00	....	1.00	17.00	....	.....
	L. Frank & Sons, Zanesville, O.	Found.	17.46	17.46	1.53	18.99	17.46	427
445	**Packers' Union Acidulated Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	14.82	14.82	1.96	16.78	14.82	445

TABLE IV.—ROCK PHOSPHATE—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid				Total Value	Record Number
			Available		Insoluble	Total Percent		
			Percent	Value	Percent			
446	**Acid Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Scientific Fertilizer Co., Pittsburg, Pa	Found.	12.79	12.79	1.85	14.64	12.79	446
451	**Economy Phosphate**	Claimed.	10.00	....	2.00	12.00	....	.....
	G. W. Rickard, Medina, O	Found.	12.47	12.47	3.39	15.86	12.47	451
456	**Dissolved Bone**	Claimed.	14.00	....	....	15.00	....	.....
	The Schaal-Sheldon Fertilizer Co., Erie, Pa	Found.	13.36	13.36	3.33	16.69	13.36	456
468	**Reese's Dissolved Phosphate of Lime**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	10.10	10.10	6.33	16.43	10.10	468
477	**Soluble Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The Packers' Fertilizer Association, Chicago, Ill	Found.	9.97	9.97	2.17	12.14	9.97	477
485	**Great Eastern's Unammoniated Wheat Special**	Claimed.	12.00	....	....	14.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	12.98	12.98	2.43	15.41	12.98	485
493	**Clark's Cove Atlas Bone Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N Y.	Found.	15.35	15.35	0.77	16.12	15.35	493
494	**Clark's Cove Sovereign Acid Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	9.52	9.52	2.43	11.95	9.52	494
495	**Cumberland's Dissolved Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	15.42	15.42	1.08	16.50	15.42	495

499	**Dissolved Bone**	Claimed.	14.00	....	1.00	16.00	....	.....
	The Great Western Fertilizer Co., Columbus, O........	Found.	15.94	15.94	2.23	18.17	15.94	499
512	**Standard Acid Phosphate**	Claimed.	12.00	....	1.00	13.00	....	.....
	The Globe Fertilizer Co., Louisville, Ky........	Found.	10.94	10.94	7.80	18.74	10.94	512
513	**Bone Phosphate**	Claimed.	10.00	....	2.00	12.00	....	.....
	The Tuscarora Fertilizer Co., Chicago, Ill........	Found.	9.79	9.79	1.08	10.87	9.79	513
516	**Soluble Dissolved Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The Packers' Fertilizer Association, Chicago, Ill........	Found.	15.04	15.04	1.72	16.76	15.04	516
519	**Ft. Dearborn Phosphate**........	Claimed.	10.00	....	....	12.00	....	.....
	The Hardy Packing Co., Chicago, Ill........	Found.	10.04	10.04	3.71	13.75	10.04	519
520	**Bone Phosphate**	Claimed.	16.00	....	2.00	18.00	....	.....
	The Ohio Bone and Phosphate Co., Orrville, O........	Found.	16.95	16.95	2.81	19.76	16.95	520
526	**Zell's T. & P. Superphosphate**........	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	15.16	15.16	1.79	16.95	15.16	526
532	**Dissolved Bone**	Claimed.	15.00	....	....	....	....	.....
	George A. Bell, Wheelersburg, O........	Found.	15.63	15.63	2.42	18.05	15.63	532
533	**Detrick's Soluble Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	14.52	14.52	1.66	16.18	14.52	533
536	**Acid Phosphate**	Claimed.	12.00	....	1.00	13.00	....	.....
	S. M. Hess & Brother, Philadelphia, Pa........	Found.	11.19	11.19	4.35	15.54	11.19	536
538	**Dissolved Bone**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Scioto Rendering Co., Columbus, O........	Found.	15.42	15.42	2.62	18.04	15.42	538
543	**Farmers' Union Dissolved Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	13.57	13.57	3.19	16.76	13.57	543
544	**Farmers' Union Erie Queen**	Claimed.	12.00	....	....	14.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	11.70	11.70	2.30	14.00	11.70	544

TABLE IV.—ROCK PHOSPHATE—Concluded.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid				Total Value	Record Number
			Available		Insol-uble	Total Percent		
			Percent	Value	Percent			
551	**Full Value Phosphate**	Claimed.	12.00	....	1.00	13.00	....	.....
	The Allegheny City Fertilizer Works, Allegheny, Pa.	Found.	11.13	11.13	2.81	13.94	11.13	551
556	**A. A. Acid Phosphate**	Claimed.	10.00	....	1.00	11.00	....	.....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	8.96	8.96	1.59	10.55	8.96	556
558	**Packers' Union Banner Wheat Grower**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	9.72	9.72	3.33	13.05	9.72	558
561	**Cumberland's Acid Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	9.78	9.78	2.62	12.40	9.78	561
566	**Dissolved Bone**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Toledo Reduction and Fertilizer Co., Toledo, O.	Found.	13.74	13.74	0.77	14.51	13.74	566
569	**Acid Phosphate**	Claimed.	14.00	....	1.00	15.00	....	.....
	The Kaufman Fertilizer Co., Cincinnati, O.	Found.	14.97	14.97	2.17	17.14	14.97	569
570	**Quinnipiac's Soluble Dissolved Bone**	Claimed.	14.00	....	....	16.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	14.08	14.08	2.17	16.25	14.08	570
575	**Soluble Dissolved Bone**	Claimed.	16.00	....	1.00	17.00	....	.....
	Dahl & Miller, Washington C. H., O.	Found.	17.78	17.78	0.51	18.29	17.78	575
583	**Acid Phosphate**	Claimed.	12.00	....	2.00	14.00	....	.....
	The Muskingum Valley Fertilizer Co., Marietta, O.	Found.	7.67	7.67	3.46	11.13	7.67	583

585	**Alliance Phosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The Royal Fertilizer Co., Cleveland, O	Found.	9.53	9.53	3.39	12.92	9.53	585
593	**Quinnipiac's Plain Superphosphate**	Claimed.	10.00	....	....	12.00	....	.....
	The American Agricultural Chemical Co., New York, N. Y.	Found.	9.02	9.02	3.90	12.92	9.02	593
603	**High Grade Acid Phosphate**	Claimed.	16.00	....	1.00	17.00	....	.....
	The Fox Chemical Co., Louisville, Ky	Found.	16.76	16.76	1.02	17.78	16.76	603
607	**Akron Grain and Grass Grower**	Claimed.	16.00	....	2.00	18.00	....	.....
	The Akron Fertilizer Co., Akron, O	Found.	17.29	17.29	1.59	18.88	17.29	607
615	**Tip Top Superphosphate**	Claimed.	15.00	....	1.00	16.00	....	.....
	Mace & Mansfield, Greenville, O	Found.	13.43	13.43	3.00	16.43	13.43	615
616	**Old Honesty Phosphate**	Claimed.	14.00	....	....	16.00	....	.....
	The Royal Fertilizer Co., Cleveland, O	Found.	15.35	15.35	1.08	16.43	15.35	616
617	**Sixteen Per Cent. Acid Phosphate**	Claimed.	16.00	....	1.00	17.00	....	.....
	The Buffalo Fertilizer Co., Buffalo, N. Y	Found.	12.09	12.09	4.28	16.37	12.09	617
622	**Acid Phosphate**	Claimed.	16.00	....	....	....	....	.....
	The Marietta Bone and Phosphate Co., Marietta, O	Found.	16.37	16.37	2.05	18.42	16.37	622

TABLE V.—ROCK PHOSPHATE AND POTASH.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid				Potash		Total Value	Record Number
			Available		Insoluble	Total Percent				
			Percent	Value	Percent		Percent	Value		
13	**Dissolved Bone and Potash**	Claimed.	10.00	....	2.00	12.00	2.00	....	....	.....
	The Bowker Fertilizer Co., Cincinnati, O.	Found.	10.35	10.35	2.23	12.58	1.70	1.79	12.14	13
20	**General Crop**	Claimed.	9.00	....	1.00	10.00	3.00	....	....	.....
	The Buffalo Fertilizer Co., Buffalo, N. Y.	Found.	8.19	8.19	2.23	10.42	*3.16	3.79	11.98	20
25	**Dissolved Bone with Potash**	Claimed.	12.00	....	1.00	13.00	2.00	....	....	.....
	The M. Hamm Co., Washington C. H., O.	Found.	12.67	12.67	4.66	17.33	*1.66	1.99	14.66	25
35	**Square Brand Phosphate and Potash**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Jarecki Chem. Co., Sandusky and Cin'ti, O.	Found.	10.94	10.94	2.49	13.43	2.04	2.14	13.08	35
38	**Soluble Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Ohio Farmers' Fert. Co., Columbus, O. ..	Found.	9.64	9.64	3.07	12.71	1.91	2.01	11.65	38
41	**Wheat Maker**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Buckeye Fertilizer Co., Columbus, O.	Found.	10.49	10.49	3.84	14.33	2.84	2.98	13.47	41
43	**Red Line Phosphate with Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	10.35	10.35	2.05	12.40	1.77	1.86	12.21	43
45	**High Grade Potash Manure**	Claimed.	10.00	....	....	....	5.00	....	....	.....
	Michigan Carbon Works, Detroit, Mich.	Found.	10.29	10.29	1.98	12.27	4.76	5.00	15.29	45
51	**Cleveland Dryer's XXX Phosphate and Potash** ..	Claimed.	12.00	....	....	14.00	4.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y...	Found.	12.59	12.59	2.05	14.64	3.55	3.73	16.32	51

52	**Cleveland Dryer's Horsehead Phos. and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	10.48	10.48	1.79	12.27	1.74	1.83	12.31	52
53	**Great Eastern's Soluble Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	10.99	10.99	3.46	14.45	1.91	2.01	13.00	53
54	**Potash Fertilizer**	Claimed.	10.00	....	1.00	11.00	5.00	....	....	.....
	The Bowker Fertilizer Co., Cincinnati, O.	Found.	10.80	10.80	1.40	12.20	4.91	5.16	15.96	54
57	**Potash and Bone Phosphate**	Claimed.	10.00	....	1.00	11.00	6.00	....	....	.....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	9.59	9.59	0.90	10.49	6.97	7.32	16.91	57
59	**Phosphoric Acid and Potash**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	Walker, Stratman & Co., Pittsburg, Pa.	Found.	10.36	10.36	1.28	11.64	2.55	2.68	13.04	59
62	**Royal Bone Phosphate**	Claimed.	10.00	....	....	12.00	5.00	....	....	.....
	The Western Chemical Co., Chicago, Ill	Found.	9.90	9.90	2.05	11.95	5.22	5.48	15.38	62
94	**High Grade Potash Manure**	Claimed.	10.00	....	....	12.00	5.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	10.61	10.61	1.59	12.20	5.11	5.37	15.98	94
112	**Bone, Phosphate and Potash**	Claimed.	10.00	....	1.00	11.00	4.00	....	....	.....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	10.81	10.81	0.57	11.38	4.07	4.27	15.08	112
116	**Grange Phosphate and Potash**	Claimed.	11.00	....	1.00	12.00	2.00	....	....	.....
	The Buffalo Fertilizer Co., Buffalo, N. Y.	Found.	9.83	9.83	3.53	13.36	*2.10	2.52	12.35	116
126	**Acidulated Bone**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Western Chemical Co., Chicago, Ill.	Found.	10.24	10.24	4.47	14.71	2.07	2.17	12.41	126
131	**Bone and Potash**	Claimed.	12.00	....	1.00	13.00	2.00	....	....	.....
	L. Frank & Sons, Zanesville, O.	Found.	12.73	12.73	1.40	14.13	2.49	2.61	15.34	131
136	**Corn and Tobacco Fertilizer**	Claimed.	14.00	....	1.00	15.00	4.00	....	....	.....
	The M. Hamm Co., Washington C. H., O.	Found.	15.42	15.42	2.68	18.10	*2.57	3.08	18.50	136
141	**Calumet Phosphate**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Chicago Fertilizer Co., Chicago, Ill.	Found.	8.57	8.57	4.92	13.49	1.29	1.35	9.92	141

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* From sulphate.

TABLE V.—ROCK PHOSPHATE AND POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid				Potash		Total Value	Record Number
			Available		Insoluble	Total Percent				
			Percent	Value	Percent		Percent	Value		
151	**Peerless Dissolved Bone and Potash**	Claimed.	12.00	....	1.00	13.00	1.50	....	....	.....
	The Canton Fert. and Chemical Co., Canton, O.	Found.	14.54	14.54	1.21	15.75	*2.26	2.71	17.25	151
163	**Phosphate and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Hardy Packing Co., Chicago, Ill.	Found.	10.04	10.04	3.77	13.81	2.85	2.99	13.03	163
174	**Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Northwestern Fertilizing Co., Chicago, Ill..	Found.	10.48	10.48	1.79	12.27	1.62	1.70	12.18	174
176	**High Grade Potash Manure**	Claimed.	10.00	....	....	12.00	5.00	....	....	.....
	The Northwestern Fertilizing Co., Chicago, Ill..	Found.	10.88	10.88	2.23	13.11	4.49	4.71	15.59	176
186	**Special Alkaline Bone**	Claimed.	10.00	....	1.00	11.00	4.00	....	....	.....
	The I. P. Thomas & Son Co., Philadelphia, Pa..	Found.	10.04	10.04	0.38	10.42	4.11	4.32	14.36	186
210	**Phosphate and Potash**	Claimed.	10.00	....	2.00	12.00	2.00	....	....	.....
	The Armour Fertilizer Works, Chicago, Ill.	Found.	9.72	9.72	1.08	10.80	2.20	2.31	12.03	210
215	**Capital Dissolved Bone and Potash**..............	Claimed.	12.00	....	1.00	13.00	3.00	....	....	.....
	The Cincinnati Phosphate Co., Cincinnati, O. ..	Found.	14.07	14.07	1.28	15.35	1.91	2.01	16.08	215
220	**Acidulated Bone and Potash**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Packers' Fertilizer Co., Cincinnati, O.	Found.	10.42	10.42	1.53	11.95	1.83	1.92	12.34	220
224	**High Grade Corn and Wheat Grower, with Potash**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Queen City Fertilizer Co., Cincinnati, O. ..	Found.	10.11	10.11	1.53	11.64	1.95	2.05	12.16	224

227	**Dissolved Bone and Potash**	Claimed.	12.00	......	......	14.00	4.00	......	......	....
	The Western Union Chemical Co., Cleveland, O.	Found.	11.82	11.82	2.05	13.87	3.59	3.77	15.59	227
241	**Climax Phosphate**	Claimed.	10.00	......	......	12.00	5.00	......	......	....
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	9.84	9.84	2.11	11.95	5.22	5.48	15.32	241
246	**Bradley's Alkaline Bone and Potash**	Claimed.	10.00	......	......	12.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y...	Found.	10.22	10.22	2.05	12.27	1.72	1.81	12.03	246
268	**Capital Alkaline Bone**	Claimed.	10.00	......	1.00	11.00	2.00	......	......	....
	The Cincinnati Phosphate Co., Cincinnati, O. ..	Found.	9.15	9.15	1.72	10.87	2.45	2.57	11.72	268
277	**Special Phosphate and Potash**	Claimed.	10.00	......	1.00	11.00	2.00	......	......	....
	Swift & Company, Chicago, Ill.	Found.	12.02	12.02	1.98	14.00	*1.66	1.99	14.01	277
283	**Dissolved Bone with Potash**	Claimed.	12.00	......	1.00	13.00	3.00	......	......	....
	The Jarecki Chem. Co., Sandusky and Cin'ti, O.	Found	10.87	10.87	3.77	14.64	3.28	3.44	14.31	283
295	**Read's Bone and Potash**	Claimed.	10.00	......	......	12.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y...	Found.	10.35	10.35	2.05	12.40	2.26	2.37	12.72	295
297	**M. E. Wheeler's Wheat and Clover Fertilizer**	Claimed.	10.00	......	......	12.00	2.00	......	......	....
	The Amer. Agri. Chem. Co., New York, N. Y...	Found.	10.35	10.35	1.66	12.01	1.83	1.92	12.27	297
313	**Dissolved Bone and Potash**	Claimed.	12.00	......	2.00	14.00	4.00	......	......	....
	G. W. Rickard, Medina, O.	Found.	11.39	11.39	2.36	13.75	4.70	4.94	16.33	313
324	**Competitor Fertilizer**	Claimed.	10.00	......	......	12.00	1.00	......	......	....
	The Wuichet Fertilizer Co., Dayton, O.	Found.	8.38	8.38	2.11	10.49	*0.39	.47	8.85	324
327	**Bone and Potash**	Claimed.	10.00	......	2.00	12.00	2.00	......	......	....
	The Tuscarora Fertilizer Co., Chicago, Ill.	Found.	11.11	11.11	0.96	12.07	2.37	2.49	13.60	327
335	**Potash Special**	Claimed.	10.00	......	1.00	11.00	2.00	......	......	....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	10.55	10.55	1.02	11.57	1.93	2.03	12.58	335
337	**Star Phosphate**	Claimed.	10.00	......	......	12.00	2.00	......	......	....
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	10.55	10.55	3.71	14.26	2.95	3.10	13.65	337

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* From sulphate.

TABLE V.—ROCK PHOSPHATE AND POTASH—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid				Potash		Total Value	Record Number
			Available		Insoluble	Total Percent				
			Percent	Value	Percent		Percent	Value		
338	**Dissolved Bone and Potash**	Claimed.	10.00			12.00	5.00			
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	10.49	10.49	2.68	13.17	5.39	5.66	16.15	338
346	**Dissolved Bone, Potash and Humus**	Claimed.	10.00		1.00	11.00	2.00			
	The Scioto Rendering Co., Columbus, O.	Found.	10.68	10.68	4.22	14.90	2.28	2.39	13.07	346
354	**Potash Special**	Claimed.	9.00		2.00	11.00	3.00			
	The Central Ohio Fertilizer Co., Mt. Vernon, O.	Found.	8.12	8.12	2.81	10.93	*3.01	3.61	11.73	354
357	**Crocker's Dissolved Bone and Potash**	Claimed.	10.00			12.00	2.00			
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	10.24	10.24	2.81	13.05	2.01	2.11	12.35	357
374	**Bone Phosphate and Potash**	Claimed.	10.00		1.00	11.00	4.00			
	The Fox Chemical Co., Louisville, Ky.	Found.	10.30	10.30	0.44	10.74	4.12	4.33	14.63	374
375	**Alkaline Bone**	Claimed.	10.00		1.00	11.00	2.00			
	The Fox Chemical Co., Louisville, Ky.	Found.	10.23	10.23	0.64	10.87	1.79	1.88	12.11	375
378	**Detrick's Alkaline Bone**	Claimed.	10.00			12.00	2.00			
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	10.43	10.43	1.40	11.83	1.62	1.70	12.13	378
383	**Phosphate and Potash**	Claimed.	10.00		1.00	11.00	2.00			
	The Farmers' Fertilizer Co., Indianapolis, Ind.	Found.	10.23	10.23	0.90	11.13	*2.18	2.62	12.85	383
387	**Soluble Phosphate and Potash**	Claimed.	10.00		2.00	12.00	4.00			
	The Armour Fertilizer Works, Chicago, Ill.	Found.	10.42	10.42	0.38	10.80	3.20	3.36	13.78	387

388	**Acme Phosphate**	Claimed.	10.00	....	....	12.00	5.00	....	....	.....
	The Hardy Packing Co., Chicago, Ill	Found.	10.42	10.42	2.56	12.98	5.04	5.29	15.71	388
389	**Big Crop Bone, Phosphate and Potash**	Claimed.	10.00	....	1.00	11.00	3.00	....	....	.....
	Mace & Mansfield, Greenville, O.	Found.	9.90	9.90	2.05	11.95	2.57	2.70	12.60	389
396	**Williams & Clark's Dissolved Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	11.19	11.19	3.52	14.71	2.08	2.18	13.37	396
404	**Bone and Potash Fertilizer**	Claimed.	10.00	....	1.00	11.00	6.00	....	....	.....
	The Scientific Fertilizer Co., Pittsburg, Pa.	Found.	8.88	8.88	1.15	10.03	6.95	7.30	16.18	404
417	**Soluble Bone and Potash Phosphate**	Claimed.	10.00	....	2.00	12.00	2.00	....	....	.....
	S. M. Hess & Brother, Philadelphia, Pa	Found.	10.24	10.24	2.68	12.92	2.24	2.35	12.59	417
426	**Grain and Grass Grower**	Claimed.	10.00	....	....	....	2.00	....	....	.....
	The Western Union Chemical Co., Cleveland, O.	Found.	10.42	10.42	2.23	12.65	2.31	2.43	12.85	426
435	**Diamond Phosphate and Potash**	Claimed.	10.00	....	....	12.00	5.00	....	....	.....
	The Chicago Fertilizer Co., Chicago, Ill	Found.	10.30	10.30	2.81	13.11	5.70	5.99	16.29	435
453	**Wheat and Grass Phosphate**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Critchfield Co., Cincinnati, O.	Found.	9.97	9.97	2.74	12.71	1.93	2.03	12.00	453
467	**Reese's Crown Phosphate and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	9.40	9.40	4.22	13.62	2.01	2.11	11.51	467
471	**Standard's Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	10.88	10.88	3.96	14.84	2.06	2.16	13.04	471
474	**Zell's Electric Phosphate**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	9.28	9.28	4.92	14.20	1.85	1.94	11.22	474
486	**Packers' Union Wheat, Oats and Clover**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	9.91	9.91	2.23	12.14	1.58	1.66	11.57	486
492	**Clark's Cove Triumph Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y.	Found.	10.35	10.35	2.17	12.52	2.18	2.29	12.64	492

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* From sulphate.

TABLE V.—ROCK PHOSPHATE AND POTASH—Concluded.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid				Potash		Total Value	Record Number
			Available		Insoluble	Total Percent				
			Percent	Value	Percent		Percent	Value		
498	**Dissolved Bone, Phosphate and Potash**	Claimed.	13.00	....	2.00	15.00	1.00	....	....	.....
	Mace & Mansfield, Greenville, O.	Found.	13.82	13.82	1.66	15.48	0.95	1.00	14.82	498
506	**Bean and General Crop Grower**	Claimed.	9.00	....	1.00	10.00	4.00	....	....	.....
	The Toledo Reduction and Fert. Co., Toledo, O.	Found.	8.00	8.00	3.25	11.25	*3.62	4.34	12.34	506
507	**Natural Plant Food**	Claimed.	8.00	....	1.00	9.00	2.00	....	....	.....
	The Toledo Reduction and Fert. Co., Toledo, O.	Found.	9.15	9.15	4.53	13.68	*2.41	2.89	12.04	507
514	**Soluble Phosphate with Potash**	Claimed.	10.00	....	2.00	12.00	4.00	....	....	.....
	The Tuscarora Fertilizer Co., Chicago, Ill.	Found.	10.87	10.87	0.19	11.06	4.16	4.37	15.24	514
524	**Ten and Two**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Seneca Fertilizer Co., Tiffin, Ohio	Found.	9.46	9.46	2.05	11.51	*1.83	2.20	11.66	524
539	**Phosphate and Potash**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The E. Rauh & Sons' Fert. Co.,Indianapolis, Ind.	Found.	9.78	9.78	0.96	10.74	*2 76	3 31	13.09	539
542	**Farmers' Union Dissolved Bone and Potash**.....	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y...	Found.	9.72	9.72	2.11	11.83	2.14	2.25	11.97	542
546	**Phosphate and Potash**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Scientific Fertilizer Co., Pittsburg, Pa.	Found.	9.47	9.47	1.66	11.13	1.79	1.88	11.35	546
549	**Dissolved Bone and Potash**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Allegheny City Fert. Wks, Allegheny, Pa.	Found.	9.59	9.59	2.05	11.64	2.14	2.25	11.84	549

550	**Special Potash Phosphate**	Claimed.	10.00	....	1.00	11.00	6.00	....	....	.....
	The Allegheny City Fert. Wks, Allegheny, Pa.	Found.	9.72	9.72	1.21	10.93	6.51	6.84	16.56	550
557	**Pacific's Dissolved Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y...	Found.	9.72	9.72	2.68	12.40	1.68	1.76	11.48	557
562	**Cumberland's Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y...	Found.	9.33	9.33	2.74	12.07	1.77	1.86	11.19	562
568	**Alkaline Bone and Potash**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Kaufman Fertilizer Co., Cincinnati, O. ...	Found.	10.53	10.53	2.05	12.58	1.79	1.88	12.41	568
577	**Soluble Bone and Potash**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Great Western Fertilizer Co., Columbus, O.	Found.	10.48	10.48	4.16	14.64	2.42	2.54	13.02	577
579	**Grain and Grass Grower**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The I. P. Thomas & Son Co., Philadelphia, Pa.	Found.	10.16	10.16	0.90	11.06	2.12	2.23	12.39	579
592	**Quinnipiac's Dissolved Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y...	Found.	10.11	10.11	4.02	14.13	1.97	2.07	12.18	592
594	**Potash Compound.**	Claimed.	12.00	....	1.00	13.00	2.00	....	....	.....
	The Globe Fertilizer Co., Louisville, Ky.	Found.	12.21	12.21	0.64	12.85	1.41	1.48	13.69	594
600	**Ox Potash Mixture**	Claimed.	10.00	....	1.00	11.00	2.00	....	....	.....
	The Tennessee Chem. Co., Nashville, Tenn.....	Found.	8.11	8.11	0.77	8.88	2.58	2.71	10.82	600
610	**Milsom's Dissolved Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Amer. Agri. Chem. Co., New York, N. Y...	Found.	9.84	9.84	2.68	12.52	1.58	1.66	11.50	610
618	**Soluble Bone and Potash**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Packers' Fertilizer Association, Chicago, Ill.	Found.	9.97	9.97	2.36	12.33	1.77	1.86	11.83	618
620	**Lawrence Wheat Special**	Claimed.	10.00	....	....	12.00	2.00	....	....	.....
	The Royal Fertilizer Co., Cleveland, O.........	Found.	10.23	10.23	2.23	12.46	2.14	2.25	12.48	620

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* From sulphate.

TABLE VI.—TANKAGE.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia.		Phosphoric Acid.		Total Value	Record Number
			Percent	Value	Percent	Value		
565	**Bone and Blood**	Claimed.	7.00		10.00			
	The Armour Fertilizer Works, Chicago, Ill.	Found.	8.55	16.25	9.08	5.45	21.70	565

TABLE VIII.—BONES.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					In Fine Bone		In Med. Bone						
			Percent	Value	Percent	Value	Percent	Value	Total Percent	Percent	Value		
8	**Chicago Raw Bone**	Claimed.	1.50	......	......	......	......	......	27.00	......	......	......	...
	The Chicago Fertilizer Co., Chicago, Ill.	Found.	2.20	5.83	21.26	15.94	6.01	3.61	27.27	......	......	25.38	8
67	**Special Bone Meal**	Claimed.	1.00	......	......	......	......	......	27.50	......	......	......	...
	Swift & Company, Chicago, Ill.	Found.	1.85	4.90	19.71	14.78	7.80	4.68	27.51	......	......	24.36	67
77	**Raw Bone Meal**	Claimed.	4.50	......	......	......	......	......	23.00	......	......	......	...
	Swift & Company, Chicago, Ill.	Found.	5.20	13.78	17.60	13.20	6.51	3.91	24.11	......	......	30.89	77
86	**Pure Raw Bone Meal**	Claimed.	4.00	......	......	......	......	......	22.00	......	......	......	...
	The Scientific Fertilizer Co., Pittsburg, Pa.	Found.	5.40	14.31	14.15	10.61	6.06	3.64	20.21	......	......	28.56	86
89	**Peerless Raw Bone**	Claimed.	4.00	......	......	......	......	......	22.00	......	......	......	...
	The Canton Fert. and Chem. Co., Canton, O.	Found.	4.95	13.12	8.86	6.64	13.85	8.31	22.71	......	......	28.07	89
103	**Bone Meal**	Claimed.	3.00	......	......	......	......	......	24.00	......	......	......	...
	The Armour Fertilizer Works, Chicago, Ill.	Found.	3.75	9.94	20.10	15.08	3.83	2.30	23.93	......	......	27.32	103
142	**Big One Pure Raw Bone**	Claimed.	4.00	......	......	......	......	......	24.00	......	......	......	...
	Nelson Morris & Co., Chicago, Ill.	Found.	5.05	13.38	17.51	13.13	6.48	3.89	23.99	......	......	30.40	142
147	**Big Six Special Bone Meal**	Claimed.	1.00	......	......	......	......	......	27.00	......	......	......	...
	Nelson Morris & Co., Chicago, Ill.	Found.	1.35	3.58	24.00	18.00	4.91	2.95	28.91	......	......	24.53	147
170	**Raw Bone Meal**	Claimed.	1.50	......	......	......	......	......	27.00	......	......	......	...
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	2.05	5.43	21.18	15.88	7.46	4.48	28.64	......	......	25.79	170

TABLE VIII.—BONES—Continued.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					In Fine Bone		In Med. Bone						
			Percent	Value	Percent	Value	Percent	Value	Total Percent	Percent	Value		
212	**Armour's Steamed Bone**	Claimed.	2.00	......	......	......	......	......	20.00	......	......	......	...
	The Armour Fertilizer Works, Chicago, Ill.	Found.	2.14	5.67	13.26	9.94	9.11	5.47	22.37	......	......	21.08	212
269	**Pure Raw Bone Meal**	Claimed.	5.00	......	......	......	......	......	22.00	......	......	......	...
	The Pittsburg Prov. and Pkg. Co., Pittsburg, Pa.	Found.	5.50	14.58	15.00	11.25	5.02	3.01	20.02	......	......	28.84	269
284	**Packers' Raw Bone**	Claimed.	1.50	......	......	......	......	......	27.00	......	......	......	...
	The Hardy Packing Co., Chicago, Ill.	Found.	1.30	3.45	18.46	13.84	8.72	5.23	27.18	......	......	22.52	284
288	**Schaal's Pure Bone Meal**	Claimed.	4.00	......	......	......	......	......	22.00	......	......	......	...
	The Schaal-Sheldon Fertilizer Co., Erie, Pa.	Found.	4.50	11.93	15.09	11.32	7.43	4.46	22.52	......	......	27.71	288
299	**Pure Bone Meal**	Claimed.	2.00	......	25.00	......	......	......	25.00	......	......	......	...
	The Central Ohio Fertilizer Co., Mt. Vernon, O.	Found.	3.40	9.01	20.49	15.37	6.12	3.67	26.61	......	......	28.05	299
304	**Ground Bone**	Claimed.	1.50	......	......	......	......	......	27.00	......	......	......	...
	The Western Chemical Co., Chicago, Ill.	Found.	1.60	4.24	22.17	16.63	8.17	4.90	30.34	......	......	25.77	304
323	**Superior Pure Raw Bone**	Claimed.	4.00	......	......	......	......	......	23.00	......	......	......	...
	The Wuichet Fertilizer Co., Dayton, O.	Found.	4.35	11.53	15.87	11.90	4.47	2.68	20.34	......	......	26.11	323
330	**Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	......	......	......	...
	The Western Chemical Co., Chicago, Ill.	Found.	2.30	6.10	14.23	10.67	7.02	4.21	21.25	......	......	20.98	330
339	**Fine Raw Bone Meal**	Claimed.	1.50	......	......	......	......	......	27.00	......	......	......	...
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	2.00	5.30	20.90	15.67	6.20	3.72	27.10	......	......	24.69	339

356	**Render's Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	......	......	......	...
	The Abbott & Martin Rend. Co., Columbus, O.	Found.	2.30	6.10	15.47	11.60	6.59	3.95	22.06	......	......	21.65	356
361	**Fine Ground Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	......	......	......	...
	The Ohio Farmers' Fertilizer Co., Columbus, O.	Found.	2.35	6.23	14.24	10.68	7.16	4.30	21.40	......	......	21.21	361
362	**Chicago Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	......	......	......	...
	The Chicago Fertilizer Co., Chicago, Ill.......	Found.	2.50	6.63	16.12	12.09	5.80	3.48	21.92	......	......	22.20	362
364	**Pure Raw Bone Meal**	Claimed.	4.00	......	......	......	......	......	22.00	......	......	......	...
	The Allegheny City Fert. Works, Allegheny, Pa.	Found.	4.75	12.59	13.51	10.13	6.76	4.06	20.27	......	......	26.78	364
393	**Pure Bone Meal**	Claimed.	4.00	......	......	......	......	......	21.00	......	......	......	...
	L. Frank & Sons, Zanesville, O...............	Found.	4.95	13.12	12.67	9.50	10.36	6.22	23.03	......	......	28.84	393
419	**Bone Meal**	Claimed.	3.00	......	......	......	......	......	25.00	......	......	......	...
	Swift & Company, Chicago, Ill................	Found.	2.75	7.29	23.01	17.26	4.88	2.93	27.89	......	......	27.48	419
420	**Bone Meal and Blood**	Claimed.	4.50	......	......	......	......	......	23.00	......	......	......	...
	Swift & Company, Chicago, Ill................	Found.	3.90	10.34	19.17	14.38	6.22	3.73	25.39	......	......	28.45	420
421	**Bone and Potash**	Claimed.	3.00	......	......	......	......	......	23.50	3.00	......	......	...
	Swift & Company, Chicago, Ill................	Found.	2.85	7.55	20.00	15.00	4.82	2.89	24.82	2.99	3.14	28.58	21
430	**Bone Meal**	Claimed.	2.00	......	......	......	......	......	20.00	......	......	......	...
	The Hardy Packing Co., Chicago, Ill..........	Found.	2.35	6.23	14.72	11.04	6.87	4.12	21.59	......	......	21.39	430
432	**Fine Ground Bone Meal**	Claimed.	2.50	......	......	......	......	......	24.00	......	......	......	...
	The M. Hamm Co., Washington C. H., O......	Found.	4.00	10.60	13.00	9.75	10.86	6.52	23.86	......	......	26.87	432
436	**Superior Pure Ground Bone**	Claimed.	4.00	......	......	......	......	......	22.00	......	......	......	...
	The Toledo Reduction and Fert. Co., Toledo, O.	Found.	4.65	12.32	17.15	12.86	7.35	4.41	24.50	......	......	29.59	436
437	**Toledo Bone Meal**	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	...
	The Toledo Reduction and Fert. Co., Toledo, O.	Found.	3.60	9.54	12.20	9.15	8.02	4.81	20.22	......	......	23.50	437
482	**Pure Raw Bone**	Claimed.	4.60	......	......	......	......	......	22.00	......	......	......	...
	The Ashland Fertilizer Co., Ashland, O........	Found.	4.80	12.72	4.06	3.04	19.16	11.50	23.22	......	......	27.26	482

TABLE VIII.—BONES—Concluded.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia		Phosphoric Acid					Potash (When included)		Total Value	Record Number
					In Fine Bone		In Med. Bone						
			Percent	Value	Percent	Value	Percent	Value	Total Percent	Percent	Value		
487	**Pure Raw Bone Meal**	Claimed.	4.50	......	......	......	......	......	23.00	......	......	......	...
	The J. L. & H. Stadler Rd. and Ft. Co., Cleve., O.	Found.	4.80	12.72	11.16	8.37	12.31	7.39	23.47	......	......	28.48	487
501	**Lawn Fertilizer**	Claimed.	4.50	......	......	......	......	......	23.00	......	......	......	...
	Swift & Company, Chicago, Ill................	Found.	5.25	13.91	19.61	14.71	4.16	2.50	23.77	......	......	31.12	501
502	**Pure Ground Bone**	Claimed.	3.00	......	......	......	......	......	23.00	......	......	......	...
	Darling & Company, Chicago, Ill.............	Found.	3.70	9.81	15.87	11.90	10.36	6.22	26.23	......	......	27.93	502
534	**Animal Bone**	Claimed.	3.00	......	......	......	......	......	24.00	......	......	......	...
	The Tuscarora Fertilizer Co., Chicago, Ill......	Found.	3.50	9.28	19.33	14.50	4.98	2.99	24.31	......	......	26.77	534
535	**Raw Bone Meal**	Claimed.	4.50	......	......	......	......	......	22.00	......	......	......	...
	The Armour Fertilizer Works, Chicago, Ill....	Found.	4.70	12.46	15.96	11.97	8.22	4.93	24.18	......	......	29.36	535
559	**Pure Raw Bone**	Claimed.	4.00	......	......	......	......	......	23.00	......	......	......	...
	The Buffalo Fertilizer Co., Buffalo, N. Y.......	Found.	5.45	14.44	13.79	10.34	5.91	3.55	19.70	......	......	28.33	559
560	**Pure Raw Bone**	Claimed.	4.60	......	......	......	......	......	22.00	......	......	......	...
	The Alliance Fertilizer Co., Alliance, O........	Found.	4.70	12.46	10.94	8.20	10.94	6.56	21.88	......	......	27.22	560
587	**Ground Raw Bone**	Claimed.	4.00	......	......	......	......	......	21.00	......	......	......	...
	Darling & Company, Chicago, Ill.............	Found.	4.50	11.93	15.57	11.68	8.36	5.02	23.93	......	......	28.63	587
590	**Bone Meal**	Claimed.	3.00	......	......	......	......	......	20.00	......	......	......	...
	The Queen City Fertilizer Co., Cincinnati, O..	Found.	2.40	6.36	19.24	14.43	2.95	1.77	22.19	......	......	22.56	590

604	**No. 1 Pure Raw Bone Meal**	Claimed.	4.50	......	......	......	......	......	26.00	......	......	......	...
	The Pittsburg Prov. and Pkg. Co., Pittsburg, Pa.	Found.	4.80	12.72	16.26	12.19	7.47	4.48	23.73	......	......	29.39	604
614	**Bone and Blood Fertilizer**	Claimed.	4.40	......	......	......	......	......	17.78	......	......	......	...
	George Rupp & Co., Hamilton, O.	Found.	4.80	12.72	13.26	9.94	5.14	3.08	18.40	......	......	25.74	614
625	**Pure Bone Meal**	Claimed.	5.00	......	......	......	......	......	25.00	......	......	......	...
	Charles Herman, R. R. 1, Scioto, O.	Found.	4.15	11.00	17.68	13.26	8.32	4.99	26.00	......	......	29.25	625
627	**Bone Meal**	Claimed.	3.00	......	......	......	......	......	24.00	......	......	......	...
	Geo. A. Bell, Wheelersburg, O.	Found.	3.10	8.22	10.97	8.23	11.42	6.85	22.39	......	......	23.30	627

TABLE IX.—POTASH SALTS.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Potash		Record Number
			Percent	Value	
79	**Screened Wood Ashes**	Claimed.	6.00		
	Swift & Company, Chicago, Ill.	Found.	4.88	5.12	79
315	**Sulphate of Potash**	Claimed.	48.00		
	The Smith Agricultural Chemical Co., Columbus, O.	Found.	*50.36	60.43	315
316	**Muriate of Potash**	Claimed.	49.00		
	The Smith Agricultural Chemical Co., Columbus, O.	Found.	53.04	55.69	316
555	**No. 1 Syndicate Muriate of Potash**	Claimed.	50.00		
	James Bonday, Jr., & Co., Baltimore, Md.	Found.	49.26	51.72	555
563	**No. 1 Syndicate Sulphate of Potash**	Claimed.	48.00		
	James Bonday, Jr., & Co., Baltimore, Md.	Found.	*47.48	56.98	563
589	**German Kainit**	Claimed.	12.00		
	The Armour Fertilizer Works, Chicago, Ill.	Found.	12.72	13.36	589

* From Sulphate.

TABLE X.—NITRATE OF SODA.

Record Number	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia.		Record Number
			Percent	Value	
402	**Nitrate Soda**	Claimed.	19.00		
	The Armour Fertilizer Works, Chicago, Ill.	Found.	19.50	51.68	402
457	**Nitrate of Soda**	Claimed.	19.00		
	The American Agricultural Chemical Co., New York, N. Y.	Found.	19.70	52.21	457
529	**Nitrate of Soda**	Claimed.	19.00		
	The Bowker Fertilizer Co., Cincinnati, O.	Found.	19.80	52.47	529
530	**Nitrate of Soda**	Claimed.	19.00		
	The Smith Agricultural Chemical Co., Columbus, O.	Found.	19.70	52.21	530
564	**Nitrate of Soda**	Claimed.	19.00		
	The Buffalo Fertilizer Co., Buffalo, N. Y.	Found.	18.50	49.03	564

TABLE XI.—PHOSPHATE ROCK.

Record Number.	Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Phosphoric Acid. Total Per Cent.	Record Number.
405	**Ground Phosphate Rock** ... Robin Jones, Nashville, Tenn. ...	Claimed. Found.	27.00 29.17	405

The Independent Packers' Fertilizer Company and the Farmers' Independent Fertilizer Company, both of Columbus, Ohio, commenced business so late in the year that their fertilizers could not be found on the markets of the State, by the Deputy Inspectors, for sampling in the regular way, so the companies furnished the secretary of the State Board of Agriculture with samples, prepared by themselves, which were analyzed by the official chemist, with the following results:

Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia.		Phosphoric Acid.					Potash.		Total value.
				Available.		Insoluble.		Total per cent.			
		Per cent.	Value.	Per cent.	Value.	Per cent.	Value.		Per cent.	Value.	
Number One, Pure Ground Raw Bone	Claimed.	4.00	......	....	......	......	......	24.00	......	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	4.65	12.32	‡15.60	11.70	s9.99	5.99	25.59	......	......	30.01
Number Two, Pure Bone Meal........................	Claimed.	2.50	......	....	......	......	......	28.00	......	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	2.70	7.16	‡23.05	17.29	s4.39	2.63	27.44	......	......	27.08
Number Three, Pure Bone Meal......................	Claimed.	1.00	......	....	......	......	......	27.00	......	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	1.35	3.58	‡22.03	16.52	s6.56	3.94	28.59	......	......	24.04
Number Four, Pure Bone Phosphate with Potash......	Claimed.	3.00	......	....	......	......	......	10.00	2.00	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	4.30	11.40	7.94	7.94	3.25	.65	11.19	*3.95	4.74	24.73
Number Five, Pure Bone Phosphate with Potash......	Claimed.	2.00	......	....	......	......	......	8.00	2.00	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	3.85	10.20	7.80	7.80	3.13	.63	10.93	*2.94	3.53	22.16
Number Six, Ammoniated Dissolved Bone with Potash.	Claimed.	1.50	......	8.00	......	2.00	......	10.00	5.00	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	1.65	4.37	8.95	8.95	2.94	.59	11.89	5.38	5.65	19.56
Number Seven, Ammoniated Dissolved Bone with Potash	Claimed.	1.00	......	10.00	......	2.00	......	12.00	1.00	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	1.15	3.05	10.27	10.27	3.90	.78	14.17	1.00	1.05	15.15

* From sulphate.

‡ Phosphoric acid in fine bone.

s Phosphoric acid in medium bone.

The Independent Packers' Fertilizer Company and the Farmers' Independent Fertilizer Company, both of Columbus, Ohio, commenced business so late in the year that their fertilizers could not be found on the markets of the State,by the Deputy Inspectors, for sampling in the regular way, so the companies furnished the secretary of the State Board of Agriculture with samples, prepared by themselves, which were analyzed by the official chemist, with the following results:

Name of Fertilizer and Address of Manufacturer.	Claimed and Found.	Ammonia.		Phosphoric Acid.					Potash.		Total value.
				Available.		Insoluble.		Total per cent.			
		Per cent.	Value.	Per cent.	Value.	Per cent.	Value.		Per cent.	Value.	
Number Eight, Ammoniated Dissolved Bone with Potash	Claimed.	1.00	......	7.00	......	2.00	......	9.00	1.00	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	1.90	5.04	9.78	9.78	2.62	.52	12.40	1.60	1.68	17.02
Number Nine, Phosphate with Potash	Claimed.	......	......	10.00	......	2.00	......	12.00	5.00	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	......	......	11.00	11.00	2.05	......	13.05	4.84	5.08	16.08
Number Ten, Phosphate with Potash	Claimed.	......	......	10.00	......	2.00	......	12.00	2.00	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	......	......	10.11	10.11	3.96	......	14.07	*1.58	1.90	12.01
Number Eleven, Special Phosphate Mixture	Claimed.	......	......	14.00	......	2.00	......	16.00	......	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	......	......	13.63	13.63	2.87	......	16.50	......	......	13.63
Number Twelve, Special Acid Phosphate	Claimed.	......	......	10.00	......	2.00	......	......	......	......	......
The Independent Packers' Fert. Co., Columbus, O..	Found.	......	......	10.81	10.81	2.68	......	13.49	......	......	10.81
Wheat, Corn and Oats Special	Claimed.	0.50	......	8.00	......	......	......	10.00	2.50	......	......
The Farmers' Independent Fert. Co., Columbus, O...	Found.	0.65	1.72	8.31	8.31	3.33	.67	11.64	2.62	2.75	13.45
Farmers' Favorite Guano	Claimed.	1.00	......	8.00	......	......	......	10.00	4.00	......	......
The Farmers' Independent Fert. Co., Columbus, O...	Found.	1.35	3.58	7.54	7.54	3.33	.67	10.87	4.07	4.27	16.06

Fish Bone and Tankage Grain Special	Claimed	1.00	......	7.00	......	......	......	9.00	1.00	......	......
The Farmers' Independent Fert. Co., Columbus, O.	Found.	1.55	4.11	8.19	8.19	3.19	.64	11.38	1.25	1.31	14.25
Bone and Potash	Claimed.	......	......	10.00	......	......	......	12.00	1.00	......	......
The Farmers' Independent Fert. Co., Columbus, O.	Found.	......	......	10.61	10.61	4.10	......	14.71	1.26	1.32	11.93
Farmers' Acid Phosphate	Claimed.	......	......	14.00	......	......	......	15.00	......	......	......
The Farmers' Independent Fert. Co., Columbus, O.	Found.	......	......	14.33	14.33	4.28	......	18.61	......	......	14.33

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* From sulphate.

‡ Phosphoric acid in fine bone.

s Phosphoric acid in medium bone.

LIST OF COMMERCIAL FERTILIZERS PROPERLY LICENSED

And offered for sale in Ohio in 1905, but samples of which were *not found* by the Secretary or Deputies on the markets, hence they have not been analyzed, and their valuations do not appear in this report.

MANUFACTURERS' CLAIMS.

Address of Manufacturer and Name of Fertilizer.	Ammonia	Phosphoric Acid			Potash
		Available	Insoluble	Total	
	Percent	Percent	Percent	Percent	Percent
The American Agricultural Chemical Co., New York, N. Y.—					
Cumberland's Potato Phosphate	1.00	8.00	....	10.00	4.00
Farmers' Union Potato, Tobacco and Truck	2.50	8.00	....	10.00	3.00
Niagara's Dissolved Bone and Potash	....	10.00	....	12.00	2.00
Niagara's Dissolved Bone	....	14.00	....	16.00	....
Niagara's Queen City Phosphate	....	12.00	....	14.00	....
Read's Farmers' Friend	2.50	8.00	....	10.00	3.00
The Armour Fertilizer Works, Chicago, Ill.—					
Muriate of Potash	....	....	....	....	48.00
Sulphate of Potash	....	....	....	....	50.00
James Bonday, Jr., & Co., Baltimore, Md.—					
Old Reliable Brand Genuine German Kainit	....	....	....	....	12.00
The Chicago Fertilizer Co., Chicago, Ill.—					
New Leader	1.00	8.00	....	10.00	7.00
Darling & Company, Chicago, Ill.—					
Acid Phosphate	....	10.00	....	....	....

The Farmers' Fertilizer Co., Indianapolis, Ind.—					
Pure Bone Meal	3.00	......	......	22.00	......
The Fox Chemical Co., Louisville, Ky.—					
Wheat and Grain Special	1.00	12.00	1.00	13.00	1.00
The Globe Fertilizer Co., Louisville, Ky.—					
Wheat and Grain Special	1.00	12.00	1.00	13.00	1.00
High Grade Acid Phosphate	......	16.00	1.00	17.00	......
Big Four Phosphate	......	8.00	1.00	9.00	1.00
The Hardy Packing Co., Chicago, Ill.—					
Hardy's Imperial	1.00	8.00	......	10.00	7.00
Complete Manure	4.00	8.00	......	10.00	7.00
S. M. Hess & Brother, Philadelphia, Pa.—					
Ground Bone	3.00	......	......	18.00	......
Tobacco Manure	3.00	8.00	1.00	9.00	7.00
The International Seed Co., Rochester, N. Y.—					
Electric Guano	1.00	8.00	2.00	10.00	2.00
The Jones Fertilizing Co., Nashville, Tenn.—					
Potash Mixture	......	10.00	1.00	11.00	2.00
Miami Valley Phosphate	2.00	10.00	1.00	11.00	2.00
Corn and Wheat Grower	1.00	7.00	1.00	8.00	1.00
A. C. Kendel, Cleveland, O.—					
Pure Raw Bone Meal	4.00	......	......	22.00	......
The Louisville Fertilizer Co., Louisville, Ky.—					
Eagle High Grade Dissolved Bone	......	14.00	1.00	15.00	......
Eagle Potash Mixture	......	10.00	1.00	11.00	2.00
Solomon Mendelson, Elyria, O.—					
Pure Bone Meal	4.70	......	......	22.19	......
Michigan Carbon Works, Detroit, Mich.—					
Banner Dissolved Bone	......	......	......	30.00	......

LIST OF COMMERCIAL FERTILIZERS PROPERLY LICENSED—Concluded.

MANUFACTURERS' CLAIMS.

Address of Manufacturer and Name of Fertilizer.	Ammonia	Phosphoric Acid			Potash
		Available	Insoluble	Total	
	Percent	Percent	Percent	Percent	Percent
G. Ober & Sons Co., Baltimore, Md.—					
Dissolved Bone Phosphate	....	14.00	2.00	18.00	....
The Ohio Bone and Phosphate Co., Orrville, O.—					
Pure Acid Phosphate	....	14.00	2.00	16.00	....
The Ohio Farmers' Fertilizer Co., Columbus, O.—					
High Grade Truck Guano	4.00	8.00	....	10.00	7.00
The Pittsburg Provision and Packing Co., Pittsburg, Pa.—					
Phosphate and Potash	....	9.00	1.00	11.00	2.00
The E. Rauh & Sons Fertilizer Co., Indianapolis, Ind.—					
Pure Ground Bone	3.00	....	....	22.00	....
Half Pure Raw Bone and Half Pure Bone Phosphate	1.50	8.50	11.00	19.50	....
John Ruehle, Defiance, O.—					
Bone and Potash Fertilizer	1.50	5.00	3.00	8.00	1.50
The Schaal-Sheldon Fertilizer Co., Erie, Pa.—					
Empire	1.00	7.00	1.00	8.00	1.00
Sheldon's Farmers' Favorite	1.00	8.00	1.00	9.00	2.00
Schaal's Standard	2.00	8.00	1.00	9.00	2.00
Dissolved Bone and Extra Potash	....	10.00	1.00	11.00	4.00

The Scientific Fertilizer Co., Pittsburg, Pa.—					
Bone, Meat and Potash	4.00	8.00	2.00	10.00	8.00
R. Stephens & Co., Ashtabula, O.—					
Buncombe Fertilizer	2.50	10.00	10.00	20.00	2.50
The Tennessee Chemical Co., Nashville, Tenn.—					
Ox High Grade Dissolved Bone	....	14.00	1.00	15.00	....
Ox Special Corn Grower	1.00	7.00	1.00	8.00	1.00
Weppner & Adams, 1640 Aldine Ave., Chicago, Ill.—					
Plant Food	3.50	....	....	5.50	0.50
The Western Chemical Co., Chicago, Ill.—					
Triumph Tobacco and Potato Grower	2.00	8.00	....	10.00	4.00
Gem Phosphate	1.00	8.00	....	10.00	7.00
Vegetable Compound	4.00	8.00	....	10.00	7.00

FERTILIZER LAW.

FROM THE REVISED STATUTES OF OHIO.

Law to Regulate the Manufacture and Sale of Commercial Fertilizers.

SEC. 4446*a*. **[How package containing commercial fertilizer to be marked.]** Any person or company who shall offer, sell or expose for sale in this State, any commercial fertilizer, shall affix to every package, in a conspicuous place on the outside thereof, a plainly printed certificate stating the number of net pounds in the package sold or offered for sale, the name or trade mark under which the article is sold, the name of the manufacturer and the place of manufacture, and a chemical analysis stating the percentage of nitrogen, or its equivalent in ammonia, in an available form, of potash soluble in water, and of phosphoric acid, in an available form (soluble or reverted) as well as the total phosphoric acid.

SEC. 4446*b*. **[Person offering same for sale to deposit sample with Secretary State Board of Agriculture.]** Before any commercial fertilizer is sold or offered for sale, the manufacturer, importer, or party who causes it to be sold or offered for sale within the State of Ohio, shall file with the Secretary of the Ohio State Board of Agriculture a certified copy of the certificate referred to in Section One (4446*a*) of this act, and shall deposit with said Secretary, a sealed glass jar, containing not less than one pound of the fertilizer, accompanied with an affidavit that it is a fair average sample.

SEC. 4446*c*. **[Manufacturer, importer, or agent to pay license.]** The manufacturer, importer or agent of any commercial fertilizer, shall pay, annually, on or before the first day of May, a license fee of twenty dollars *on each* brand, for the privilege of selling or offering for sale within the State, said fee to be paid to the Secretary of the Ohio State Board of Agriculture; provided, that whenever the manufacturer or importer shall have paid the license fee herein required, for any person acting as agent for such manufacturer or importer, such agent shall not be required to pay the fee named in this section.

SEC. 4446*d*. **[Analysis to be made by Secretary State Board of Agriculture.]** All analyses of commercial fertilizers sold within the State shall be made by or under the direction of the Secretary of the Ohio State Board of Agriculture, and paid for out of the funds arising from license fees, as provided for in Section Three [4446*c*.] At least one analysis of each fertilizer sold shall be annually made.

SEC. 4446*e*. **[Secretary to publish, annually, report of analyses made and fees received.]** Said Secretary shall publish annually, a correct report of all analyses made and certificates filed, together with a statement of moneys received on account of license fees and expended for analyses, and any surplus arising from license permits shall be placed to the credit of the agricultural fund.

SEC. 4446*f*. [**Penalty for exposing for sale or selling commercial fertilizers unlawfully.**] Any person or party who shall offer or expose for sale, or sell, any commercial fertilizer without complying with the provisions of Sections 4446*a*, 4446*b* and 4446*c* of the Revised Statutes, or shall permit an analysis to be attached to any package of such fertilizer, stating that it contains a larger percentage of any one or more of the constituents named in said Section 4446*a* than it really does contain, shall be subject to a penalty of not less than two hundred dollars for the first offense, and not less than five hundred dollars for every subsequent offense, to be recovered in a civil action, and the offender, in all cases, shall also be liable for damages sustained by the purchasers of such fertilizers; provided, however, that a deficiency of one per cent. of the nitrogen, potash or phosphoric acid claimed to be contained, shall not be considered as evidence of fraudulent intent.

SEC. 4446*g*. [**Where suits to recover penalties may be brought.** Suit may be brought for the recovery of penalties under the provisions of this act in the court of common pleas of the county where the fertilizer was offered for sale, or sold, or where it was manufactured; and all penalties so recovered, shall be paid into the State treasury to the credit of the general revenue fund.

SEC. 4446*h*. [**Secretary of State Board of Agriculture may see lect samples to be analyzed.**] The Secretary of the Ohio State Board of Agriculture, or any person by him deputized, is hereby empowered to select from any package of commercial fertilizer exposed for sale in any county in Ohio, a quantity not exceeding two pounds, which quantity shall be for analysis to compare with sample deposited with said Secretary, as provided in Section Two [4446*b*], of this act, and with the printed certificate found on the given package found on sale.

SEC. 4446*i*. [**All suits under this act to be brought by Secretary State Board of Agriculture.**] All suits for the recovery of fines under the provisions of this act, shall be brought by the Secretary of the Ohio State Board of Agriculture, in the name of the State of Ohio.

SEC. 7002. [**Unlawful sale of commercial fertilizer.**] Whoever sells, exposes for sale, or offers for sale any commercial fertilizer without having complied with the provisions of Sections 4446*a*, 4446*b* and 4446*c* of the Revised Statutes shall be fined in any sum not exceeding two hundred dollars, or imprisoned not more than thirty days, or both, and said fine or imprisonment, or both, shall not be a bar to the recovery of the civil penalty provided for by Sections 4446*f* and 4446*g* of the Revised Statutes.

BOARD OF
LIVE STOCK
COMMISSIONERS.
PAUL FISCHER,
STATE VETERINARIAN.

STATE OF OHIO.
Department of Agriculture
W. W. MILLER, SECRETARY.

STATE BOARD
OF
AGRICULTURE.
A. F. BURGESS,
CHIEF INSPECTOR OF
NURSERIES AND ORCHARDS

DIVISION OF COMMERCIAL FEED STUFFS.

COLUMBUS, OHIO, December 31, 1905.

To the Manufacturers and Users of Commercial Feed Stuffs:

In compliance with the law to regulate the sale of Commercial Feed Stuffs in Ohio, enacted by the Seventy-sixth General Assembly, I present herewith my report for 1905, giving a list of certificates filed by manufacturers and a report of all analyses made by the State Chemist.

During the past year the secretary has had the state thoroughly canvassed by deputy inspectors for the purpose of securing samples of commercial feed stuffs. Eighty-nine brands have been properly licensed; samples of seventy-three brands have been found in the open markets of the state and analyzed by the official chemist. The claims of ingredients made by manufacturers and the findings of the chemist are published herein.

All licenses authorizing the sale of commercial feed stuffs in Ohio during 1905 expire today, and before feed stuffs can legally be sold or offered for sale in this state by manufacturers, importers or dealers, it will be necessary to secure licenses for 1906. Dealers should be very careful to purchase and accept only such goods as are properly licensed for 1906.

All manufacturers of, dealers in and users of, commercial feed stuffs are earnestly requested to co-operate with the undersigned in enforcing this law.

If manufacturers and importers, when applying for licenses, will state where their goods may be found, it will greatly facilitate the work of securing samples for analyses.

SAMPLES SENT BY MANUFACTURERS.

Manufacturers of commercial feed stuffs, when making application for license, should, in compliance with the law, send samples of their respective brands to the secretary, in order that they may be used in comparison with those drawn on the markets of the state.

ADVANCE REPORTS.

In order to secure accuracy, it is my custom to send advance reports of analyses to manufacturers that they may check the chemist's work before the results are published in the annual report. Unless errors are shown, analyses will be published as reported. It will not be sufficient to claim errors in analyses because percentages are lower than are claimed by manufacturers. This is no evidence of error on the part of the chemist. I will have samples retested, when manufacturers are dissatisfied with findings, and if requested to do so, will send parts of the samples in question to any member of the Association of Official Agricultural Chemists, of which Prof. Henry W. Wiley, of Washington, D. C., is secretary; but the chemists selected to make such analyses must be paid by the manufacturers making the requests.

SAMPLING FEED STUFFS.

My duly authorized deputy inspectors, Ed. Loewer, R. H. Ramsdell, B. M. Derthick and M. R. Merritt, are instructed to draw samples from the open markets of the state and from stocks purchased by consumers. During the season of 1905, seventy-three brands of feed stuffs have been sampled and analyzed and the result of analyses is given in the table which follows. There were, however, sixteen brands licensed, samples of which could not be found by the most diligent search. A list of these brands is given in a second table.

REGULAR ANALYSES.

The work of analyzing feed stuffs is done in accordance with the law of the state, and under this law the official chemist analyzes such samples as are furnished him by the secretary of the state board of agriculture.

SPECIAL ANALYSES.

Requests are sometimes made by manufacturers, dealers and consumers for special analyses of commercial feed stuffs and I am obliged to say that I have no fund for paying for the work involved, as the law does not provide for anything of this kind. If, however, it will be an accommodation to such parties, I will have special analyses made by the official chemist of such samples as may be sent me which are accompanied by the proper fee of ten dollars ($10) each. The greatest care should be taken in selecting samples for analyses, to secure fair averages of the goods.

THE USE OF CONCENTRATED FEEDING STUFFS IN THE FEEDING OF FARM ANIMALS.

In our report for 1904 on Commercial Feed Stuffs, attention was called to the fact that few of the materials employed in the feeding of farm animals can be successfully fed alone, owing to the unfavorable relation of the nutrients for obtaining the best results in the production of work, flesh, wool, milk, etc.

The farmer can produce a limited number of concentrated feeding stuffs, such as corn, oats and other cereals, peas, beans and other legumes, in the management of his crops, and utilize them in the feeding of his domestic animals; but the bulk of concentrated feeding stuffs is supplied by the trade under the name of concentrated feeding stuffs. These feeding stuffs consist in part of the ground whole grains of cereals, as corn, oats, rye, etc., or mixtures of the same; but by far the greater and more important portion consists of the legitimate by-products of the various industries related to agriculture. Thus the milling industry furnishes bran, middlings, red dog flour and mixed feed; the starch and glucose works yield dried starch refuse, germ meal, gluten meal, etc. The oil industries yield linseed meal, cotton seed meal, etc. The stock yards yield dried blood, meat scraps, etc.; the breweries and distilleries yield malt sprouts, dried brewers' grains and dried distillers' grains. Unfortunately by-products of low feeding and money value also find their way into the market and are sold under one name or another, at prices far exceeding their real value, to the detriment of the consumer. Among these may be mentioned oat hulls, rice hulls, buckwheat hulls, peanut shells and corn cobs.

It is, therefore, of the greatest importance to the consumer that he be kept informed of the nature and condition of the commercial feeding stuffs which he desires to purchase, not only that he may be enabled to compound a suitable feeding ration, but also that he may have some means of knowing that he is receiving full value for the money which he is expending.

In our last report the proximate principles of a feeding stuff were enumerated. It may be well here to describe them briefly and to point out their functions in the process of animal nutrition.

1. *Protein* embraces all the nitrogenous ingredients of a feeding stuff and is usually estimated by determining the total nitrogen present and multiplying the result by the factor 6.25. This factor is based upon the average content of nitrogen in the albuminoids, the most important group of nitrogenous ingredients occurring in feeding stuffs, and amounts to 16 per cent.

Protein is an essential ingredient of feeding stuffs. In the formation of lean meat, tendons, nerves, hair, horns, hoofs, wool, casein of milk and the albuminoids of the blood no other ingredient of a food can replace it.

On the other hand, protein can replace the non-nitrogenous ingredients in a ration and cause the production of energy and even fat in the animal body; but as it is the most expensive of the nutrients, it would be unwise from a business standpoint to utilize it thus in a feeding ration, when the cheaper carbohydrates and fats would answer the same purpose.

2. *Fat* or *crude fat* includes all substances which are dissolved out of the dry feeding stuff by means of anhydrous ether. In the case of seeds and the products derived from them, it is essentially real fat; but when thus extracted from roughage or green fodders, includes more or less of waxy matter, resinous mater, chlorophyle and other coloring matter. The real fat of a feeding stuff is either stored directly in the body of the animal, or is oxydized and furnishes heat and energy. The amount of heat furnished by the oxydation or burning of fat is two and one-fourth times as great as that of an equal amount of either protein or carbohydrates.

3. *Nitrogen, free extract* is found by the difference after deducting the sum of the protein fat, fiber and ash from the total dry matter of a feeding stuff. It consists chiefly of starch, sugar and pectose. These substances, during the process of nutrition, are either transformed into fat and stored in the animal body, or are oxydized and produce heat and energy.

4. *Fiber* is the organic matter left, after boiling the feeding stuff—freed from fat—alternately with dilute sulphuric acid and a dilute solution of caustic soda and thorough washing after each treatment with hot water. It consists chiefly of cellulose or vegetable fiber. Pure cellulose is identical in chemical composition with starch. Hence the digestible portion of the nitrogen, free extract, and the digestible portion of fiber are usually grouped together as carbohydrates.

5. *Ash,* as the name implies, is the mineral matter and salts left after completely burning off the organic matter of a feeding stuff. It contains phosphates, sulphates, chlorides and carbonates of potassium, sodium. calcium, magnesium, together with silica and oxide of iron. The ash ingredients are essential constituents of a feeding stuff. Besides being the source of the bones of animals, their presence is indispensable in the process of digestion and in other functions of the animal system. With the exception of common salt, a good ration of ordinary farm products will supply sufficient ash ingredients for all purposes. A deficiency in these essential ingredients, however, might occur in the liberal or exclusive use of these commercial feeding stuffs, from which, through the process of manufacture, the soluble salts have been largely removed, as in starch refuse, brewers' grains and sugar beet pulp.

In order to facilitate comparison with the analyses made during the year, the following table is added, which gives the average composition of some of the leading feeding stuffs, as well as that of waste products, which are finding their way into the market. It will be seen, by comparing the waste products with the poorest kinds of roughage produced on the farm, namely, the various kinds of straw, that as whole they are even inferior to the latter. Grinding and mixing these waste products with high grade feeding stuffs does not increase their food value, and any price paid for them higher than the market price of straw is exorbitant. Thus some of the brands of commercial feed stuffs reported herein are worth very little more than good oat straw to the feeder, while a number of other feeding stuffs inspected show that these inferior waste products have been liberally used.

TABLE 1.—AVERAGE COMPOSITION OF FEEDING STUFFS.

Hay, Etc.	Protein.	Fat.	Fiber.
	Per ct.	Per ct.	Per ct.
Timothy hay (in full bloom)	6.0	3.0	29.6
Red clover hay (in full bloom)	12.4	4.5	21.9
Alfalfa hay	14.3	2.2	25.0
Cowpea hay	16.6	2.2	20.1
Wheat straw	3.4	1.3	38.1
Rye straw	3.0	1.2	38.9
Oat straw	4.0	2.3	37.0
Corn stover (field cured)	3.8	1.1	19.7
Grain.			
Corn (Dent)	10.3	5.0	2.2
Oats	11.8	5.0	9.5
Rye	10.6	1.7	1.7
Wheat (winter)	11.8	2.1	1.8
By-Products.			
Wheat bran (winter)	16.0	4.0	8.1
Wheat middlings	15.6	4.0	4.6
Cotton seed meal	42.3	13.1	5.6
Linseed meal (old process)	32.9	7.9	8.9
Linseed meal (new process)	33.2	3.0	9.5
Malt sprouts	23.2	1.7	10.7
Dried beet pulp	7.9	0.6	17.4
Waste Products.			
Corn cob	1.5	0.3	24.0
Oat hulls	3.4	1.3	30.7
Rice hulls	2.9	1.2	33.5

The law to regulate the sale of commercial feed stuffs in Ohio will be found on the last two pages of this report.

W. W. MILLER, *Secretary.*

TABULATED ANALYSES OF COMMERCIAL FEED STUFFS FOR THE YEAR ENDING DECEMBER 31, 1905.

All analyses are made by Prof. H. A. Weber, Ohio State University, Columbus, Ohio, Official Chemist.

Record No.	Name of Feed Stuffs and Address of Manufacturer.	Claimed and Found	Crude Protein. Per ct.	Crude Fat. Per ct.	Crude Fiber. Per ct.	Record No
1	**Schumacher's Stock Feed.**	Claimed.	13.00	5.00	9.50	1
	The American Cereal Co., Chicago, Ill.	Found.	10.50	3.43	10.65	
2	**Old Process Oil Meal.**	Claimed.	32.36	5.70	.....	2
	The American Linseed Co., Toledo, O.	Found.	35.00	6.63	7.95	
3	**Sucrene Dairy Feed.**	Claimed.	16.50	3.50	17.50	3
	The American Milling Co., Chicago, Ill.	Found.	15.31	3.86	13.50	
4	**Sucrene Horse Feed.**	Claimed.	13.50	3.50	16.50	4
	The American Milling Co., Chicago, Ill.	Found.	14.00	3.58	11.20	
5	**Oil Meal.**	Claimed.	30.00	5.00	8.00	5
	The Metzger Seed and Oil Co., Toledo, O.	Found.	32.37	7.12	9.60	
6	**Victor Corn and Oat Feed.**	Claimed.	9.00	4.00	10.00	6
	The American Cereal Co., Chicago, Ill.	Found.	7.00	2.95	13.55	
7	**Buffalo Gluten Feed.**	Claimed.	25.00	3.50	7.00	7
	The Glucose Sugar Refining Co., Chicago, Ill.	Found.	26.25	2.70	8.60	
8	**Hominy Feed.**	Claimed.	10.60	8.27	.....	8
	The Toledo Elevator Co., Toledo, O.	Found.	8.75	7.19	8.60	

9	**Blood Meal.**	Claimed.	85.00	0.20	.....	9
	The Armour Fertilizer Works, Chicago, Ill.	Found.	86.16	0.34	.....	
10	**Hominy Feed.**	Claimed.	10.26	8.70	3.84	10
	The American Hominy Co., Indianapolis, Ind.	Found.	9.19	7.10	4.20	
11	**Blatchford's Calf Meal.**	Claimed.	25.00	5.00	5.25	11
	John W. Barwell, Waukegan, Ill.	Found.	24.50	4.93	5.45	
12	**Boss Corn and Oat Feed.**	Claimed.	9.00	4.00	11.00	12
	The Great Western Cereal Co., Chicago, Ill.	Found.	8.75	5.21	14.15	
13	**"Dandy" Corn and Oat Feed.**	Claimed.	10.00	6.00	7.00	13
	J. M. Neer, Marion, O.	Found.	8.75	4.75	10.30	
14	**Old Process Ground Linseed Cake.**	Claimed.	32.50	5.50	10.00	14
	The Midland Linseed Co., Minneapolis, Minn.	Found.	32.69	8.29	8.90	
15	**Blatchford's Sugar and Flaxseed.**	Claimed.	27.00	10.00	7.00	15
	John W. Barwell, Waukegan, Ill.	Found.	26.19	10.19	7.90	
16	**Viscid Oil Meal.**	Claimed.	34.00	7.50	16.15	16
	The Milwaukee Elevator Co., Milwaukee, Wis.	Found.	27.13	10.85	11.35	
17	**Meat Meal.**	Claimed.	50.00	10.00	.....	17
	The Armour Fertilizer Works, Chicago, Ill.	Found.	53.38	12.53	.....	
18	**Star Feed.**	Claimed.	9.88	7.31	.....	18
	The Toledo Elevator Co., Toledo, O.	Found.	8.75	6.25	11.55	
19	**Corn, Oats and Barley Chop.**	Claimed.	7.00	3.96	12.96	19
	The Imperial Grain and Milling Co., Toledo, O.	Found.	6.56	3.09	12.95	
20	**No. 2 Chop.**	Claimed.	7.13	3.31	13.08	20
	The Imperial Grain and Milling Co., Toledo, O.	Found.	6.56	3.25	15.10	
21	**Hominy Feed.**	Claimed.	10.24	7.70	.....	21
	The Hunter Bros. Milling Co., St. Louis, Mo.	Found.	9.63	9.39	4.80	
22	**Royal Oat Feed.**	Claimed.	7.80	2.80	22.00	22
	The Great Western Cereal Co., Chicago, Ill.	Found.	6.12	2.60	26.35	

TABULATED ANALYSES OF COMMERCIAL FEED STUFFS—Continued.

Record No.	Name of Feed Stuffs and Address of Manufacturer.	Claimed and Found	Crude Protein.	Crude Fat.	Crude Fiber.	Record No.
			Per ct.	Per ct.	Per ct.	
23	**Royal Corn and Oats Chop Feed.**	Claimed.	8.28	3.12	.....	23
	Jacob Beck & Son, Ltd., Detroit, Mich.	Found.	8.31	5.23	6.45	
24	**Malt Sprouts.**	Claimed.	.....	.....	.....	24
	The Cleveland and Sandusky Brewing Co., Cleveland, O.	Found.	26.69	1.15	12.95	
25	**Corn Protegran.**	Claimed.	33.00	8.50	.....	25
	The Dewey Bros. Co., Blanchester. O.	Found.	30.18	13.40	14.60	
26	**Warner's Gluten Feed.**	Claimed.	25.00	3.00	9.00	26
	The Warner Sugar Refining Co., Waukegan, Ill.	Found.	19.69	4.39	6.95	
27	**Union Grains, Biles' Ready Ration.**	Claimed.	24.00	7.00	7.00	27
	The J. W. Biles Co., Cincinnati, O.	Found.	21.00	7.00	10.05	
28	**Hominy Feed.**	Claimed.	11.02	7.70	.....	28
	Suffern, Hunt & Co., Decatur, Ill.	Found.	10.06	8.85	4.15	
29	**Biles' Fourex (XXXX) Grains.**	Claimed.	33.00	11.00	14.00	29
	The J. W. Biles Co., Cincinnati, O.	Found.	29.30	13.23	14.50	
30	**Old Process Oil Meal.**	Claimed.	32.00	5.50	.....	30
	The Mansfield Linseed Oil Co., Mansfield, O.	Found.	31.94	8.33	9.45	
31	**Ox Brand Kiln Dried Corn Hearts.**	Claimed.	.....	.....	.....	31
	The Farmers' Co-Operative Milling Co., Mt. Vernon, O.	Found.	9.19	7.22	4.30	
32	**Poultry Bone.**	Claimed.	25.00	5.00	.....	32
	The Armour Fertilizer Works, Chicago, Ill.	Found.	22.31	2.63	.....	

33	**Queen Gluten Feed.** The National Starch Co., Chicago, Ill.	Claimed. Found.	25.00 24.94	2.50 2.49	8.00 8.25	33
34	**Excelsior Corn and Oat Feed.** The Great Western Cereal Co., Chicago, Ill.	Claimed. Found.	9.00 8.75	4.20 4.58	10.00 11.10	34
35	**Horse Feed.** The H. O. Company, Buffalo, N. Y.	Claimed. Found.	12.00 12.69	4.50 4.89	9.60 11.35	35
36	**Ajax Flakes.** Julius Marcus, New York, N. Y.	Claimed. Found.	30.00 30.18	10.00 14.50	14.00 13.98	36
37	**Quaker Dairy Feed.** The American Cereal Co., Chicago, Ill.	Claimed. Found.	14.00 12.69	3.50 4.19	15.00 18.04	37
38	**Vim Oat Feed.** The American Cereal Co., Chicago, Ill.	Claimed. Found.	7.50 6.56	2.75 2.60	..... 31.68	38
39	**Corn, Oat and Barley Feed.** The American Cereal Co., Chicago, Ill.	Claimed. Found.	13.00 10.06	5.00 4.60	9.50 11.84	39
40	**Cream Stock Feed.** The Cream of Oats Co., Ltd., Warren, O.	Claimed. Found.	10.80 7.88	3.50 3.18	..... 15.36	40
41	**Pearl Hominy Feed.** E. I. Bailey, Cleveland, O.	Claimed. Found.	10.26 9.19	8.70 8.95	3.84 4.69	41
42	**Molasses Grains.** E. P. Mueller, Milwaukee, Wis.	Claimed. Found.	19.00 19.25	2.73 4.55	..... 12.98	42
43	**Merchants' High Grade Dairy Feed.** Julius Marcus, New York, N. Y.	Claimed. Found.	30.00 31.50	10.00 14.58	14.00 11.84	43
44	**Kiln Dried Hominy Feed.** N. H. Hunter, Agt., Buckeye City, O.	Claimed. Found.	11.00 9.19	9.00 9.14	..... 3.70	44
45	**Hammond Dairy Feed.** The Western Grain Products Co., Milwaukee, Wis.	Claimed. Found.	17.00 17.06	3.00 4.01	9.00 13.85	45
46	**Chop Feed.** The Star Mill Co., Racine, O.	Claimed. Found.	11.00 10.50	4.00 4.23	6.00 4.63	46

TABULATED ANALYSES OF COMMERCIAL FEED STUFFS—Continued.

Record No.	Name of Feed Stuffs and Address of Manufacturer.	Claimed and Found	Crude Protein. Per ct.	Crude Fat. Per ct.	Crude Fiber. Per ct.	Record No.
47	**Oil Meal.**	Claimed.	32.00	5.50	.....	47
	Thompson & Co., Alleghany, Pa.	Found.	29.31	7.39	10.01	
48	**Flint Gluten Feed.**	Claimed.	27.00	2.00	7.00	48
	The Flint Mill Co., Milwaukee, Wis. and St. Louis, Mo.	Found.	24.06	4.15	7.55	
49	**Green Diamond Hominy Feed.**	Claimed.	10.00	7.00	7.00	49
	The Flint Mill Co., Milwaukee, Wis. and St. Louis, Mo.	Found.	9.19	8.55	4.40	
50	**Cottonseed Meal.**	Claimed.	38.42	7.85	12.16	50
	The Buckeye Cotton Oil Co., Cincinnati, O.	Found.	36.31	7.63	11.50	
51	**American Poultry Food.**	Claimed.	14.00	4.50	.....	51
	The American Cereal Co., Chicago, Ill.	Found.	12.69	6.26	5.90	
52	**Derby Hominy Feed.**	Claimed.	11.00	8.00	3.50	52
	The Great Western Cereal Co., Chicago, Ill.	Found.	10.94	10.20	4.75	
53	**Linseed Oil Meal.**	Claimed.	36.00	1.00	10.00	53
	The American Linseed Co., Chicago. Ill.	Found.	36.31	2.58	10.35	
54	**Jersey Mixed Feed.**	Claimed.	12.05	3.20	16.00	54
	The Indiana Milling Co., Terre Haute, Ind.	Found.	11.37	3.25	15.91	
55	**Feed.**	Claimed.	.....	.....	.....	55
	Mattingly Bros., Frankfort, O.	Found.	11.37	3.14	8.07	

56	**P. & W. Chop.**	Claimed.	13.00	5.00	13.00	56
	Peterson & Wright, Akron, O.	Found.	10.06	3.80	12.95	
57	**Buckeye Wheat Feed.**	Claimed.	17.75	4.70	7.00	57
	The American Cereal Co., Chicago, Ill.	Found.	16.08	4.80	7.75	
58	**Climax Corn Distillers' Grains.**	Claimed.	34.00	11.00	.....	58
	The Deutsch & Sickert Co., Milwaukee, Wis.	Found.	32.37	11.03	15.25	
59	**Tiger Gluten Feed.**	Claimed.	25.00	2.75	7.00	59
	The St. Louis Syrup and Preserving Co., St. Louis, Mo.	Found.	29.31	3.50	7.78	
60	**Hominy Feed.**	Claimed.	10.70	7.80	2.20	60
	Perin Bros., Cincinnati, O.	Found.	10.50	9.65	4.45	
61	**Continental Gluten Feed.**	Claimed.	35.00	12.50	12.50	61
	Continental Cereal Co., Peoria, Ill.	Found.	28.44	12.30	11.64	
62	**Chop Feed.**	Claimed.	10.81	6.02	9.72	62
	The Commercial Milling Co., Cleveland, O.	Found.	9.63	3.94	10.67	
63	**Protena Dairy Feed.**	Claimed.	20.00	3.50	15.00	63
	Purina Mills, St. Louis, Mo.	Found.	19.69	3.50	18.35	
64	**Acme Chop Feed.**	Claimed.	8.75	3.51	8.65	64
	The Nickel Plate Elevator & Coal Co., Cleveland, O.	Found.	9.19	3.70	14.30	
65	**Acme Cow Feed.**	Claimed.	8.75	3.19	16.65	65
	The Nickel Plate Elevator & Coal Co., Cleveland, O.	Found.	9.19	5.15	19.32	
66	**Excelsior Chop.**	Claimed.	9.53	3.44	5.83	66
	Fred T. Gurley, White Cottage, O.	Found.	9.19	4.00	7.47	
67	**Dried Beet Pulp.**	Claimed.	8.50	0.50	17.50	67
	The Larrowe Milling Co., New York, N. Y.	Found.	9.19	0.45	17.40	
68	**Superior Dairy Feed.**	Claimed.	17.00	4.00	.....	68
	Wadsworth Bros., Warren, O.	Found.	15.75	3.35	9.20	
69	**No. 2 Chop.**	Claimed.	.....	.....	.....	69
	The Aetna Milling Co., Steubenville, O.	Found.	7.88	2.70	5.10	

TABULATED ANALYSES OF COMMERCIAL FEED STUFFS—Concluded.

Record No.	Name of Feed Stuffs and Address of Manufacturer.	Claimed and Found.	Crude Protein. Per ct.	Crude **Fat.** Per ct.	Crude Fiber. Per ct.	Record No.
70	**No. 1 Yellow Chop.**	Claimed.	8.575	3.716	.....	70
	The Toledo Grain and Milling Co., Toledo, O.	Found.	9.19	3.70	5.90	
71	**C. O. & B. Chop.**	Claimed.	9.056	4.33	.....	71
	The Toledo Grain and Milling Co., Toledo, O.	Found.	10.50	5.69	7.55	
72	**Keystone Chop.**	Claimed.	9.537	5.73	.....	72
	The Toledo Grain and Milling Co., Toledo, O.	Found.	9.63	4.20	10.20	
73	**No. 1 Yellow Chop.**	Claimed.	7.03	3.39	9.30	
	The Royce & Coon Grain Co., Bowling Green, O.	Found.	7.88	2.80	11.55	73

LIST OF COMMERCIAL FEED STUFFS PROPERLY LICENSED.

And offered for sale in Ohio in 1905, but samples of which were not found by the Secretary or Deputies on the markets, hence they have not been analyzed.

MANUFACTURERS' CLAIMS.

Address of Manufacturer and Name of Feed Stuffs.	Crude Protein.	Crude Fat.	Crude Fiber.
	Per ct.	Per ct.	Per ct.
The American Cereal Co., Chicago, Ill.			
Hominy Feed	11.00	8.00	3.75
The American Stock Food Co., College Corner, O.			
American Stock Food	.....	.....	.....
The Armour Fertilizer Works, Chicago, Ill.			
Feeding Tankage	40.00	10.00	.....
Beef Scraps	60.00	12.00	.....
F. W. Brode & Co., Memphis, Tenn.			
"Owl" Brand of Cotton Seed Meal	41.00	7.00	.....
F. P. Cassel, Landsdale, Pa.			
F. P. C. Chick Manna	14.01	4.75	.....
The Clev. & Sandusky Brew. Co., Cleveland, O.			
Dried Brewers' Grains	.....	.....	.....
The Corno Mills Co., East St. Louis, Ill.			
Corno Horse and Mule Feed	8.9	5.6	8.5
The Glucose Sugar Refining Co., Chicago, Ill.			
Germ Oil Meal	20.00	8.50	14.00
The H-O Company, Buffalo, N. Y.			
Dairy Feed	18.00	4.50	13.03
Poultry Feed	17.00	5.50	4.80
J. C. Hubinger Brothers Co., Keokuk, Ia.			
K. K. K. Gluten Feed	27.47	3.10	8.58
The Pioneer Cereal Co., Canal Fulton, O.			
Pioneer Barley Feed	18.00	4.00	.....
The Semler Milling Co., Hamilton, O.			
Hominy Feed	.....	.....	.....
The Sherwin-Williams Co., Cleveland, O.			
Linseed Oil Meal	33.00	5.00	7.00
James S. Warner, New Philadelphia, O.			
Boss Egg Food	20.00	4.00	7.00

LAW TO REGULATE THE SALE OF COMMERCIAL FEED STUFFS IN OHIO.

SECTION 1. Every manufacturer of commercial feed stuffs, and every person, firm or company that shall sell, offer for sale or expose for sale the same in this state, shall furnish with each car or other amount shipped in bulk, and shall affix to every package of such commercial feed stuffs, in a conspicuous place on the outside thereof, a plainly printed statement clearly and truly certifying the number of net pounds in the shipment, or in each package containing such commercial feed stuffs, the name or trade mark under which it is sold, the name of the manufacturer or shipper, the place of manufacture or the place of business of the shipper and a chemical analysis stating the percentages it contains of crude protein (allowing one percentum of nitrogen to equal six and one-fourth percentum of protein), crude fat and crude fiber.

SECTION 2. Before any commercial feed stuffs shall be sold or offered for sale in Ohio, the manufacturer, shipper, company, firm or person who causes it to be sold or offered for sale, within the state, shall file with the secretary of the Ohio state board of agriculture a certified copy of the certificate referred to in section 1 of this bill, and shall deposit with said secretary a sealed glass jar or bottle containing not less than one pound of the said stuffs, sold or offered for sale, accompanied by an affidavit that it is a fair average sample.

SECTION 3. The manufacturer, importer or agent of any commercial feed stuffs, shall pay annually, on or before the first day of March, a license fee of $25.00 on each brand, for the privilege of selling or offering for sale within the state, said fee to be paid to the secretary of the Ohio state board of agriculture, provided: that whenever the manufacturer or importer shall have paid the license fee herein required, any person, company or firm selling, or offering for sale, any commercial feed stuffs, or acting as agent for such manufacturer or importer, shall not be required to pay the fee named in this section. On receipt of proper application for license, with license fee, the secretary of the Ohio state board of agriculture shall issue license for the current year; all licenses shall expire with the calendar year, December 31st.

SECTION 4. The term "commercial feed stuffs" as used in this act shall include linseed meal, cotton seed meal, pea meal, cocoanut meal, rice meal, gluten meal, gluten feed, dried brewers' grain, malt sprouts, hominy feeds, cerealine feeds, oats feeds, mixed feeds and all material of similar nature; but shall not include hay, straw, whole seeds, the mixed meals made directly from the entire grains of wheat, rye, barley, oats, Indian corn, buckwheat and broom corn, wheat bran or middlings, not mixed with other substances, but sold separately as distinct articles of commerce, and pure grains mixed and ground together.

SECTION 5. All analyses of commercial feed stuffs, sold within the state shall be made by, or under the direction of, the secretary of the Ohio state board of agriculture, and paid for out of the funds arising from license fees provided for in section 3 of this act. At least one analysis of each brand of commercial feed stuffs shall be made annually, if samples can be found in possession of agents, dealers, or consumers.

SECTION 6. Any manufacturer, company, firm, agent or dealer, who shall sell or offer for sale, or expose for sale, any commercial feed stuffs in this state, without complying with the requirements of this act, or shall sell or offer or expose for sale, any commercial feed stuffs which contain a smaller percentage of constituents than it is certified to contain, shall upon conviction be fined not more than one hundred dollars for the first offense, and not more than two hundred dollars, for each subsequent offense, and the offender in all cases, shall also be liable for damages sustained by the purchaser of such commercial feed stuffs; provided, however, that a deficiency of two percentum of crude protein or two percentum of crude fat, or an excess of two percentum of crude fiber, claimed to be contained shall not be considered as evidence of fraudulent intent.

SECTION 7. Any person who shall adulterate any kind of meal, ground grain, bran or middlings with any other substance whatever, for the purpose of sale shall plainly mark or brand each and every package with a correct statement as to the proportions and kind of adulterant or adulterants used therein. The penalty for violating this section shall be a fine of not less than ten dollars or more than two hundred dollars for the first offense, and not less than twenty-five dollars or more than five hundred dollars for each subsequent offense.

SECTION 8. The secretary of the Ohio state board of agriculture, or any person deputized by him, is hereby authorized to draw from any package or bulk quantity of commercial feed stuffs exposed for sale, or found in possession of any purchaser, in any county in Ohio, a quantity not exceeding two pounds which shall be for analysis, as provided in section 5 of this act.

SECTION 9. All suits for the recovery of fines, under the provisions of this act, shall be brought by the secretary of the Ohio state board of agriculture, in the name of the state of Ohio. All prosecutions under this act shall be governed by section 3718*a* of the Revised Statutes of Ohio and said section shall control all such prosecutions.

SECTION 10. The secretary of the Ohio state board of agriculture shall publish, annually, a correct report of all analyses made and all licenses issued for the sale of commercial feed stuffs, together with a statement of all moneys received on account of license fees and all expenditures made in connection with securing samples, and having the same analyzed; and any surplus shall be placed to the credit of the agricultural fund.

The above is a correct copy of the law regulating the sale of Commercial Feed Stuffs in Ohio, now in force.

W. W. MILLER, *Secretary.*

REPORT OF THE PROCEEDINGS

OF THE

STATE FARMERS' INSTITUTE,

Held in the Board of Trade Auditorium, Columbus, Ohio,
January 9 and 10, 1906.

Promptly at ten o'clock, Tuesday morning, January 9, 1906, President William Miller, of the State Board of Agriculture, called to order, at the Board of Trade Auditorium, Columbus, Ohio, the annual State Farmers' Institute, and introduced Mr. Lowell Roudebush, of New Richmond, Ohio, as the president of the institute.

Thereupon, Mr. Roudebush assumed the chair, and announced that in the absence of the Williamson Sisters' Quartet, who were to open the meeting with music, the first thing upon the program was the presentation of the President's address. Mr. Roudebush then delivered the following address:

PRESIDENT'S ADDRESS.

Fellow Farmers, Ladies and Gentlemen: We want to thank you in advance for your attendance and interest. The State Board of Agriculture has prepared a program, each number of which is worth your time and money. I hope you will feel free to discuss subjects presented; not for the sake of discussion, but that you may get something of value out of them.

Eighteenth century agriculture in America was of necessity a war against nature—iconoclastic—destructive, not constructive. From destroying the wild man and beast it was an easy transition to the soil. Many nineteenth, and we fear not a few twentieth, century farmers had, and may have, this tendency in a marked degree. We seem to have forgotten the changed order of things, for the spirit of twentieth century agriculture is, and will continue to be, going in partnership with nature's laws. The great work of agricultural colleges, experiment stations, nature studies, and last, but by no means least, farmers' institutes, is to teach agriculturalists when and how to best go into this partnership. Wendell Phillips eloquently told us half a century ago of the "Lost Arts," but failed to mention this all-important one. He had forgotten the work of that first citizen of Massachusetts, Squanto. This child of nature had learned that plants as well as animals must be fed. Untutored as he was, he was America's first agricultural chemist.

As farmers' institute lecturers we should see things; remember things; do things, and be broad enough to know how, when and where they can be made practical. Each lecturer who would attain to the highest success must of necessity be an experimentalist, in some degree at least, with the scientific habit fairly developed. More than that, he must be in close touch with the work of the Experiment Station, the Ohio State University, Agricultural Students' Union, the U. S. Department of Agriculture, and work in harmony with the State Board of Agriculture. The ability to take from our own experiences and to glean from bulletins, agricultural text books and reports that which will be of value to the farmers of Ohio, with their varying conditions of soil and climate, is of great value. This experimenting, this gleaning, can never have its greatest value to farmers until there is a specific tenure of office and normal instruction of some kind under the auspices of the State Board of Agriculture. Farmers' institute lecturers will ultimately be employed all the year when they have been tried and not found wanting. In short, their time and talent should, and will be, the property of the State when the ideal plan has been evolved. We are not criticising the "powers that be," when we say that the present plan of selecting them two months in advance is not satisfactory. All is wrapped in uncertainty to both employer and employe.

The agricultural outlook was never so bright as it is this morning. Argentina, our greatest competitor along animal husbandry lines, has not been able to eradicate the contagious and infectious diseases of her domestic animals. Port Arthur is not and will not become the gate of egress for the products of the vast Siberian plains, but one of ingress for those of the American farm to China and the regions beyond.

Never was the Ohio State Fair so appreciated as it was last year. The attendance at the Ohio State University was never so large. The influence of the Grange was never so great. All this is but the direct result of that paramount idea in modern agriculture—that brain and muscle, man and nature, must go hand in hand. (Great applause.)

The President: The next thing in order will be music by the Williamson Sisters' Quartet. They need no introduction to this audience.

Thereupon the institute was favored by music.

The President: The next will be an address by Mr. F. H. Ballou, Assistant Horticulturist, Ohio Agricultural Experiment Station, Wooster, Ohio, on

"OHIO HORTICULTURE."

I trust that the title of the subject which I have chosen for brief discussion today—"Ohio Horticulture"—suggests a spirit of patriotism rather than one of egotism. Just why Ohio horticulture should be so radically different from New York horticulture, or Michigan horticulture, or horticulture in Missouri, Texas, California or Oregon, that it deserves a classification by itself, would seem a relevant question. This question, however, has a parallel in another and more personal one; and the second is this: Why are our own homes so materially different from New York homes, or Michigan homes, or the homes of Missouri, Texas, California or Oregon, or even our neighbors' homes, as to justify us in entertaining a special love and fostering a spirit of peculiar loyalty for that which, through the favor and blessing of a Divine Providence, is our own—our very own—earned and built and established and maintained by the diligent labor of our hands? Is there, then, one among us who would question the privilege, the consistency, the right of the Buckeye horticulturist to refer to his beloved calling as Ohio Horticulture?

There are also other reasons why horticulture in Ohio deserves the special classification which I have chosen to give it; reasons why all individuals and institutions contributing to the advancement of horticultural interests through the avenues of education, research or encouragement in other forms, should be keenly alive to the widely varied conditions existing in our state and to the proportionately varied requirements of those who are growing, or who contemplate growing, fruits or vegetables under these different conditions.

Perhaps in no other state, aside from those which are mountainous, are there greater existing variations of natural physical conditions as relating to elevation and contour of the surface of the land; in climatic conditions as relating to extremes of the erratic temperature and wide difference in the humidity of the atmosphere as generally prevailing between the northern or lake section and the more elevated, central and southern areas; and in the natural character of the soil as relating to its composition, texture and adaptability to widely different crops.

In point of the number of classes of fruits and vegetables produced, owing to these widely differing elevations, soils, locations and climatic conditions, there are, indeed, few states that equal and none that surpass our own. The northern or lake regions, for nearly half a century, have maintained an almost world-wide reputation for the great quantity and superb quality of grapes produced. In more recent years this same area has proven no less well adapted to the growing of choice peaches which, through the modifying and equalizing influence of the lake upon the temperature, and the retarding effect of ice and the broad expanse of water of low temperature in the spring, are rendered both dependable and profitable. Similar climatic characteristics also prevailing in this area, that are present in the celebrated apple section of western New York, enable growers who are favored with the heavier soils to compete with the orchardists of York State in the production of choice, hard, long-keeping fruit of good quality.

The hills of central and southern Ohio produce apples of a deeper, more brilliant color and possibly of even finer flavor than those of the more northern sections, although, it is true, this point of excellence is gained along with a slightly advanced degree of maturity resulting from more intense sunshine, a higher temperature and a dryer atmosphere. Other tree fruits, even our hardier varieties of peaches, succeed well upon these favored uplands and hill slopes, while grapes and small fruits of all classes and of unsurpassed quality thrive and are grown extensively and successfully for our ever-growing markets.

Potatoes and other vegetables succeed in almost every part of our state, these reaching a high standard of excellence both on upland soil and in the fertile valleys. Considerable areas of muck or peat land, in different localities of the state, contribute a part in diversifying our crops by enabling those who own this character of soil to make celery and onion growing an industry of no little magnitude. Through causes that will become apparent when I speak more particularly of our excellent home markets, the forcing of vegetables under glass is taking its place among the extensive horticultural industries of Ohio. The forcing of rhubarb and the growing of mushrooms, in specially constructed pits or cellars, is also claiming attention and will, no doubt, in a short time, become an established branch of our calling.

While the widely varied physical features of our state enable horticulturists to produce an equally varied line of fruits and vegetables of the highest excellence in quality, the same causes are responsible for the arising of issues relative to cultural methods, which have been the source of much discussion.

Probably the question of orchard culture is, at the present time, one in which there is the greatest general interest manifested. That this is true, is one of the most encouraging signs of our times. Orchardists and fruit growers of all classes are awakening to the realization that good culture, in the generally accepted significance of the term, does not merely suggest the means by which they may secure successive, heavy crops of fruit or vegetables by continuous cultivation, but how they may secure these heavy, regular crops with the minimum loss of fertility of the soil, and with the least possible lowering of its original good physical character as relating to its content of humus or decayed vegetable matter.

This new attitude of our orchard culturists has not been brought about wholly by a casually chosen course of scientific study of the effects of clean cultivation and crop production upon the soil. In a few cases at least, may we not safely assume that this deeper study of the principles of soil culture and improvement was inspired, first, by a few gentle hints that something was wrong, and, later, by the stern dictates of Nature, that something must be done else the soil should, in time, cease to profitably respond to cultivation?

It is only natural, considering the widely differing soils, elevations, locations and other physical features of the orchard areas of Ohio, that there should be a more or less serious (though let us hope friendly) disagreement among our orchardists themselves, concerning particular methods of orchard culture. The orchardist who is favored with level ground and soil of seemingly almost inexhaustible fertility, and who for many years has been, and is yet, continuing to grow undiminished, heavy crops of fruit by constant, clean cultivation year after year without the addition of vegetable matter or fertility in any form, does not fully appreciate the fact that upon the thinner, less fertile soil of his neighbor the practice of following the annual, early, short period of cultivation with the sowing and growing of a cover-crop of leguminous plants for winter protection and soil improvement is a wise, commendable and necessary plan to follow. However, the radical clean-culturist and the cover-crop devotee heartily agree upon at least four points: first, that orchards should be annually plowed and cultivated; second, that, as a result of this annual plowing, the root systems of the trees are forced to occupy a lower level in the soil, thereby suffering less from extremes of heat, drought and cold; third, that the more recently developed plan of growing orchards in sod and maintaining a heavy mulch about the trees is not consistent with twentieth century ideas of orchard practice; fourth, that this same practice of mulching favors the development of a shallow root system and especially attracts the fibrous or feeding-root systems of the trees to the surface of the soil, where they are at the mercy of extremes of drought, heat and cold.

Upon what do our clean-culturist friends base their claims for clean culture and their opposition to mulching? Has careful, systematic investigation discovered to them that regular, annual plowing and cultivation results in keeping the root systems of their orchards at a comparatively low level in the soil, or are they guessing at it? Has personal, extended, critical examination revealed to them that mulching favors surface or shallow rooting in the orchard? What are the comparative depths of the main root systems of trees under these different methods of culture?

Where is the fibrous or feeding-root system of a tree normally found? What are the conditions under which the feeding rootlets of a tree most readily perform their function? And do not the fibrous rootlets of a tree persist in feeding where the essential conditions for availing themselves of plant food exist? When these problems shall have been generally, carefully studied and partially solved, it is safe to predict that the erstwhile loyal clean-culturist and the radical exponent of the grass-mulch system will cordially shake hands and beg each other's pardon. This is a consummation devoutly to be wished, for the orchard areas of Ohio are by no means confined to the level portions. Some of the most excellent fruit lands of our state are found upon the elevated summits and steep, sharp slopes of the hilly sections. On such locations annual breaking of the ground and cultivation, with cover-crops, which is the nearest approach to absolutely clean cultivation that the average Ohio orchardist can safely make, is quite impracticable and out of the question. Upon these steep slopes a few annual plowings followed by even very abbreviated periods of soil stirring, means a disastrous and alarming loss of fertility as well as soil, by flooding rains. It is upon such locations, though by no means particularly confined to these, that the grass-mulch method of culture is peculiarly suited. It is here that the mowing machine and straw-rack worthily displace the plow and cultivator; it is here that a smooth, even, unbroken surface, thickly carpeted with a velvety sod, and the heavily mulched areas beneath the low-headed trees may be a worthy substitute for the rough, uneven, terraced, water-gullied, depleted soil of a continuously cultivated hillside.

This many-sided problem of orchard culture is, I repeat, one of peculiar interest in Ohio horticulture, but its solution, I trust, is near at hand; and in the not far distant future the clean-culturist of the valley and plain and the grass-mulch man of the hilltop and mountain side shall dwell and labor side by side in perfect peace and harmony.

It seems to be a popular plan, in discussing matters pertaining to horticulture, to take up each phase of fruit culture in a regular, cut-and-dried order. Were I to follow this established custom, the subject of varieties would naturally follow the discussion of orchard culture. But there are important features in Ohio horticulture that are so interdependent, as well as problems of concern, arising from this intricate state of affairs, that I forbear to unfold the discussion in the usual order. It is therefore advisedly that I desire, next, to touch upon our peculiar market facilities and their bearing upon the labor problem, as well as upon the general independence and prosperity of the unusually large percentage of individual soil culturists in our state.

Aside from her widely varied physical characteristics, Ohio differs from her sister states in that within her boundaries there are an unusually large number of prosperous, growing cities, towns and villages which afford excellent home markets within easy reach of almost every section. This comparatively large number of strong, thriving, business centers indicates a heavy population of progressive, prosperous citizens of both city and country. In turn this heavy population of thrifty, industrious, ambitious citizens means smaller farms and more of them. Former sections of land have been cut into halves, quarters, eighths, sixteenths or suburban or city lots for the benefit of succeeding generations or to suit the ever ready purchaser of a small area of ground upon which to build a home. What does all this signify to Ohio horticulture? It means that the problem of securing, permanently, skilled horticulturists, or even common laborers of the typically American, wide-awake, ambitious sort, to work upon the larger fruit farms, is a very difficult and perplexing matter. Close observation along these lines for some time has shown that there is a limited number of young men who are anxious to go on the modern fruit farm to work. But, after a short time, the trouble begins. If the owner be a kindly disposed, intelligent, energetic, enthusiastic, nature-loving horticulturist, and possessed of a pleasing home, attractively environed, these same young men are almost certain to become pliant hosts of equally active microbes of enthusiasm and ambition. The first effects of this inoculation is to rapidly develop them into excellent workmen and trusted overseers and foremen. The second stage is marked by a growing love for horticulture, a realization of its possibilities as a chosen life work even upon a comparatively small area of ground, and a determination to purchase a small place, establish a business and build a home. The third and last stage (so far as the employer is concerned) is a scene of leave-taking in which a sad-faced proprietor sorrowfully accepts the sincerely expressed, heartfelt thanks of the bright-faced, confident youth, for the encouragement, help and inspiration that he has ever been to him. Under these circumstances, what attitude is our employer to assume? Shall he deplore the fate that loses to him his brightest and best helpers? Or shall he thank God that he lives in a commonwealth where homes are within the means of the humblest workers if they be but earnest, sincere and ambitious.

I have merely endeavored to analyze the situation—its solution doth not appear. Nor is the problem of labor the heritage of the individual fruit grower alone; the same difficulty of securing permanent laborers of a high degree of efficiency exists, as well, at our public institutions. The really quick, bright, observant, intelligent, ambitious men are not working for wages alone, but almost with an eye single to the time when they may be in position to use to good advantage in a private business the lessons they daily learn. And I must say that I cannot but admire and respect them for this.

Therefore, in the second place, all this means that fruit growing shall not fall into the hands of a few favored land owners as it is naturally doing in those states which are isolated from the great markets of our country. In the third place it means the possibility of a multiplied number of small, but independent fruit culturists who, nevertheless, are specialists in their line. It means an equally increased number of modest, but independent, prosperous and happy country homes. And it means that Ohio's excellent public institutions—educational, investigational and promotional—established and maintained for the advancement of the interests of agriculture and horticulture, have greatly increased opportunities for rendering real service to the greatest possible number of her citizens.

The same varied natural conditions which enable horticulturists in our state to produce widely diversified crops, together with the many convenient and excellent home markets which stimulate horticultural industry and enterprise, thereby affecting, in a greater or lesser degree, the problem of skilled labor on the fruit farm, combine to make the feature of quality in fruits one of real and increasing importance. The discussion of quality, too, is almost synonymous with and inseparable from the consideration of varieties, while the discussion of varieties very naturally leads to that of tree and plant breeding and so-called "pedigree" trees and plants. Upon these points I shall have time to touch but very briefly.

Without pausing to compare the fruits of New York, of the Virginias, of Missouri and of the far West and Southwest with our own (for they all are justly famous in one or more respects), I wish to emphasize the truth that Ohio sunshine and the peculiar character of the soils of the Buckeye State combine to pack away as much richness and genuine merit within our beautifully colored and fine textured fruits as in any other favored section of the north temperate zone. The recognition of this high quality in fruits is becoming apparent in the increased demand in our markets for these for dessert and culinary use; and we need not fear that northern, southern, eastern or western fruits will ever supplant our home-grown products, fresh from the field, orchard, cellar or storage house.

Unusual opportunities for the study of varieties, and keeping in close touch with the planters of our state, cannot but impress one that the horticulturists of Ohio, as a class, are abreast, if not a little in advance, of those of other states, in their interest, desire and demand, amounting almost to a mild craze, for new and better varieties of fruits. I do not hesitate to frankly say that this is to be regretted. I will hasten to state, however, that this does not apply to our more conservative, professional fruit growers who recognize the sterling merits of the present standard varieties, hold fast to that which is good, and who wisely leave the expensive and withal unsatisfactory work of variety testing to the experiment station and to those who have money and time to sacrifice upon the altar of novelties. This urgent demand by our people for reliable information concerning all new varieties of fruits, as they are offered by introducers, costs our experiment station no small amount of money, time and valuable ground space which might, at least in part, be devoted to research work of a more valuable, deeper and more lasting character.

Instead of this unwarranted interest in and inquiry concerning the uncertain merits of new and untried varieties and novelties, much rather would I observe a thoughtful, sensible, conservative sentiment of turning toward the many excellent varieties of fruits and vegetables that we already have, in an endeavor, by careful, systematic selection, to improve these by strengthening their already strong points and eliminating those which are the weaker, for it has become a matter of general admission and belief that there are variations in the types or characteristics of the same variety of fruits or vegetables or grain, as well as in animals of the same breed, that makes possible a greater or lesser degree of improvement by selection.

If our agricultural and horticultural teachers, investigators and institute workers would but stand shoulder to shoulder in the moulding of opinion among the farming and fruit-growing public, concerning the futility of a chronic running after new varieties—the ludicrous falling at the feet of every little, new, highly-colored idol of our advertising nurserymen and seedmen—much money, time, vexation and disappointment might be avoided. And let us, as these same teachers and moulders of public sentiment in horticultural matters, warn our friends against going to the other extreme of being influenced to pay exorbitant prices for varieties which, by possible selection, have been developed to that alleged state of perfection in which they are declared to possess a "pedigree." It is quite true that a variety of fruit, vegetable or grain may have a pedigree, but not unless it originated as a seedling of known parentage upon both sides for one or more generations, and which parentage is a matter of indisputable record. The term "pedigree" as now popularly applied to fruits is a misnomer, is misleading and confusing, and causes only misunderstanding and disappointment. When the worthy and commendable process of selection shall have developed such results as to justify the adoption of a special, fitting, appropriate word, name or term to express either the process, its achievement or both, by all means let us vote for the coinage of such a word and recommend its immediate application. Until then, we shall insist upon calling things by their right names—hence selection is simply selection. I would not give the impression that I do not appreciate an excellent new variety of fruit, or that I would discourage the earnest, conscientious plant breeder in his wonderfully interesting, fascinating and legitimate work of seeking improved varieties through the medium of hand pollination and the growing of seedlings. Rather do I hail with thankfulness a new variety that proves to possess real value; and such a variety need not be boomed into public approval—it will quietly and naturally take its merited place among its fellows. But, as these prizes come but singly among a hundred or a thousand of such new varieties as are being forced upon the market, I would discourage, with "hearty good will," the indiscriminate testing of new varieties—the blind-seeking for "an indefinite something" one knows not what.

I have endeavored to touch upon a few of the more important phases of fruit growing in our state. There are other features relating to the profession well worthy of discussion, but lack of time forbids.

In passing, I am constrained, however, to speak more particularly, though very briefly, of the influence of horticulture upon the country home and, inversely, of the influence of the country home upon horticulture. It is the Ohio home—the country home—that is the foundation of all prosperity and progress in our state. The more attractive and homelike our country homes are made by surrounding them with nature's green foliage, beautiful, fragrant blossoms and well grown, luscious fruits, the greater will be the attraction of our young folks toward country life and agricultural and horticultural occupations. The greater the number of these earnest, ambitious young folks who turn toward the old farm for the solution of the momentous problems of life, the greater the demand for technical education in their chosen calling. The greater the demand for practical and scientific education in agriculture and horticulture, the greater will be the opportunities for the accomplishment of good by our agricultural schools and colleges. The greater the number of graduates in the different branches of agriculture and horticulture, the more urgent will become the demand for the solution of problems which require greater resources of time, capital, and appliances than are within the means of the individual worker. This growing demand for investigational work materially broadens the scope of usefulness of our experiment station, and acts as an incentive to its individual specialists to make a greater and more earnest effort in research work in their respective departments. The broader, more comprehensive the work of our experiment station, and the more practical and available are made the results of its work of inquiry, the more successful will become our soil culturists, both old and young. And the more successful and prosperous our farmers, fruit growers and gardeners become, the greater will become the rural wealth of our state, and the larger the number of beautiful, attractive, modern country homes.

This may be said to be "reasoning in a circle," but who is there who would declare it to be a narrow, circumscribed one—who would deny that the destiny of our state and our country begins with the country home as an institution of our land, depends upon the maintenance and elevation of its high standard, and its increase in numbers.

But, after all, in no small degree, it has been the associating together of our agriculturists and horticulturists and home owners, and the discussion of matters pertaining to better methods and practices in farm, orchard and garden work, and of home earning, home building and home adornment, that has made the representative Ohio country home what it is today. It is this close fellowship, this association of those who are successful and enthusiastic and optimistic with those less fortunate and partially discouraged, that makes it possible for the agricultural and horticultural institutions of our great state to fulfill, in their respective and special ways, the mission for which they were created. Among the helpful, social institutions and organizations of our state there are none in which the respective workers are enabled to come into such close, personal contact with, or to get so nearly to the hearts and homes of our people as, first, the institute workers of Ohio, whom I have the privilege and the pleasure of addressing today, and the earnest, active members of our state horticultural society, of which I have the honor of being chosen representative to offer, upon this occasion, our message of friendly greeting and to pay our respects to the excellent organization with which we would be faithful co-workers.

It is quite unnecessary to mention, in detail, what is being accomplished for our farmers and fruit men through the medium of modern farmers' institutes which are being held in almost every neighborhood throughout our state. It is sufficient to say that the sum and substance of public educational and investigational work, and private, practical experience of the foremost agriculturists and horticulturists of Ohio are being presented to our people in such concentrated and available form that ignorance of ways and means in modern farming and horticulture is quite inexcusable. It is equally unnecessary to dwell at length upon what our state horticultural society has, for the past forty years, been doing in the way of encouragement to fruit growing as a rapidly extending, profitable industry of our state; in stimulating, through friendly, social intercouse, and discussion, a love for trees, vines, plants, fruits and flowers, and their use in making our homes more beautiful and homelike; in the timely recommendation of legislative action upon such measures as, from time to time, have been necessary for the protection of fruit growers and the advancement of the interests of horticulture generally; and in filling a unique and important position that no other institution of our state is designed to fill. Let us trust that there will ever be a sufficient number of loyal horticulturists in our state, not only to continue and support, but to gradually strengthen the cause which lay so near to the great, generous, unselfish, kind hearts of such men as Dr. Warder, Mr. Campbell, Mr. Ohmer and others whose motives and words and ambitions and advice have proved an inspiration to so many—even to those who are so unfortunate as not to have known them personally. These beloved pioneers in horticulture have been called to their reward; but their works do follow them; and as we who are younger can testify, our society today is blessed and honored by having among its membership men who, aside from being possessed of the progressive and aggressive traits that characterize the new century, have inherited the broad-mindedness, the kindly hearts, the sympathetic spirits and the generous impulses which memory associates with those who have gone before.

Horticulture to us, then, is distinctly "Ohio Horticulture," because it is our horticulture, which should be a sufficient explanation of our enthusiasm, which is founded not only upon our love for the calling itself, but upon the sound basis of patriotism and of love and reverence for the illustrious pioneers in horticulture—the founders of the fruit growing industry in our state. Upon the other hand, our horticulture is "Ohio Horticulture" because, as I have endeavored to show, it is, in some respects, different from the horticulture of her sister states. We have our own peculiar conditions, adaptations and limitations, and while we have fairly earned and won our share of successes. we likewise have had our failures and made our mistakes. Success, however, has not made us vain, nor have failures and mistakes brought more than temporary discouragement. Rather has the encouragement of success so broadened us that there has been developed a feeling of brotherhood, a spirit of sympathy and a disposition to extend a helping hand to those less fortunate. Upon the other hand, temporary discouragement and depression, occasioned by failures or mistakes, have only resulted in a happy recognition of, and a glad turning toward this potent source of sympathy and true helpfulness, and a deeper and more earnest study of the practical and scientific principles which so fully concern thoughtful cultivators of the soil.

The President: A little time will be given for the discussion of this important subject. (No response.) If there is no discussion, the next number on the program is an address by Mr. Homer W. Jackson, of Cambridge, Ohio, on

"GOING INTO THE CHICKEN BUSINESS."

There have probably been more failures and disappointments in the chicken business than in any other legitimate occupation. This is partly the fault of the business and partly the fault of the men who have attempted to take it up. I know nothing, in the agricultural line at any rate, which demands such close attention to details. And yet it seems to have a peculiar fascination for precisely the men who have no liking for details, or ability in mastering them. Our exuberant poultry literature is very largely responsible for these misfits. We are beginning to hear something now about scientific chicken farming, and the time may come when it will be a science, but it has not come yet. The successful chicken business of the present, as a specialty, is literally a work of art; a matter of skill—when it isn't pure luck—rather than accurate knowledge. It is useless to talk of science in connection with a business in which no two successful men follow the same methods, and in which neither those who succeed or those who fail can give any real explanation of how it happened.

There are few who realize the magnitude of the chicken business. I shall spare you the array of comparative figures which is usually indulged in at this point. But I believe in the business. It does not matter how many men and methods have failed (and the number is appalling), any industry yielding an annual income of over five hundred million dollars, a gross income of 400% on the investment, as a side line, is capable of being made a safe and profitable specialty.

I do not claim that it is always a safe proposition now for specialists. We are only emerging from the "millions-in-it" stage, and beginning to develop the business rationally. The popular fancy would have the business developed along factory lines, everything under one roof, and the bigger the better. And this conception of it has put back its practical development by twenty-five years.

The lack of personal fitness and business judgment taken into these big ventures were sufficient alone to sink them. But the occasional persistent man who persevered until he had fitted himself to manage it intelligently, has found sooner or later that it was still impossible to achieve marked success because the intensive poultry plant is founded on wrong principles. It may not be an economic failure, but it is not a success.

The intensive plant, it should be explained, is one in which large numbers of chickens are kept on limited space, usually in big apartment houses with limited yards. To prevent any misunderstanding, I should explain further that the chicken business is naturally divided into three general branches: fancy, farm and commercial. With the first I shall not attempt to deal, because it does not properly come within the scope of my subject. It has its own possibilities and limitations. Farm and commercial flocks have much in common. No further proof is needed of the statement that intensive poultry culture is wrong in principle, than the fact that of the thousands of such plants which have been built, many of them under most favorable circumstances, those that have not proved absolute failures have been saved by special market advantages or by being diverted to the fancy class where the income may be large enough to make success possible, even when the business is run at a practical disadvantage. Even those plants which were competently managed and started off successfully, have had short and not very hilarious lives. Some of these, when everything is new and clean, have been able to make excellent records for a short time. But if there is a strictly commercial chicken plant of the intensive type that has been run successfully for ten years, I have never heard of it.

One of the objections to the intensive chicken farm is the cost of the investment. I quoted at the beginning from an enthusiastic circular published by the agricultural department at Washington, which makes the statement that the average income from hens is 400% on the investment. But this applies only to the value of the stock. On the farm the additional investment is small, but on the intensive plant of the specialist, the investment in buildings is relatively very large. On many of them the cost of the plant is out of all proportion to the earning power of the stock. It is a difficult matter to construct a first-class apartment house for less than three dollars for each possible hen and the cost may easily reach five dollars, and a fifty-cent hen in a five-dollar house is a badly handicapped start.

Another grave disadvantage is the certainty of the permanent and heavily stocked plants becoming "chicken sick." This is not an imaginary trouble. Whole sections have been driven out of the business or compelled to adopt different methods on account of it.

But when these problems, and others to which I shall not take time to refer, are met, and in one way or another they can be, there is one difficulty which remains and which is constantly increasing with the age of the plant, and that is the excessive labor cost. This is the one thing which the enthusiastic poultryman does not count and will not mention if he can avoid it. For that reason we have little available data on this point, and yet to the commercial poultryman it is of vital importance. I have heard of one awakened dreamer who quit the business in disgust because, he said, one man could not care for even three hundred hens and do it right. That is an extreme statement, but I am satisfied that six hundred hens is approximately the limit of one man's capacity on an intensive plant.

A man can manage six hundred hens so as to make a success of the business, but it depends upon so many conditions that very few ever do it. Such a plant rarely does more than pay fair wages to its operator. It is not fair to say that an industry which pays living wages, is a failure, but one which does no more than that is not, in a business sense, a success.

The unit in the chicken business is very small, and the profit must necessarily be small. Even a net income of 100% or 200% on an investment of half a dollar, does not amount to a very large sum. Such a business, to be successful, must have a large number of units, which means, in practice, that one man must be able to care for several times six hundred hens, or, with smaller flocks, must be free to do much other work. And I know of no way by which the earning capacity of a man can be increased on an intensive commercial plant. It may sometimes be done, but at present the successful chicken farms which are being established, and there are many of them, are practically all on the colony house plan.

The colony plan is not a new thing. A few wise men have been holding to it for many years, and profiting largely by doing so, but the most of us have been running after all manner of strange gods. It has cost us many years and, in the aggregate, an immense sum of money to learn that there is absolutely no way to keep a chicken house warm (except by using artificial heat) without making it damp and unhealthy. The popular air-tight, glass front house can never be anything but damp in cold weather and a prolific source of colds and roup. There is no system of ventilation which will make such houses healthful without making them cold.

And it has taken just as many years to learn that warm houses are not necessary, at any rate; that practically all the shelter hens need is to be kept dry, and shielded from rain, snow and wind. I cannot speak from experience with the large-combed breeds, but my Wyandottes have suffered less from frosted combs in dry, cold houses than in warm damp ones. I have made no comparative experiments as to the effect of cold houses on egg production, but those made by the Maine experiment station, for example, indicate that hens may lay just as well in cold houses as in warm ones. In the matter of health there is no comparison between the two methods. Houses can be kept dry and warm by the use of artificial heat, but it is an impractical method on an egg farm, and invariably lowers the vitality of the stock.

The colony house has many advantages over the intensive plan. To begin with, it saves in cost, since colony houses can be smaller and more cheaply constructed. These small houses are free from the cold draught in winter and the insufferable heat in summer, which are characteristic of apartment houses. When made portable (and colony houses should never be permanently located) danger of the ground becoming chicken sick is avoided. But most of all, this plan saves labor. And it will bear repeating that the salvation of the commercial poultry plant is in reducing the labor cost to the minimum.

The colony plan affords the best conditions for the application of self-feeder methods. It is doubtful whether self-feeders will ever prove permanently satisfactory with yarded hens, because it costs as much effort to get the hens to take sufficient exercise as is saved by the use of the feeder. The self-feeder is as yet an experiment, but a successful one, and its use seems almost essential to the practical development of commercial poultry farming.

It is true that during the winter there is little to choose between the two methods, and where the expense is not important, an ideal arrangement is the use of apartment houses in winter and colony houses the rest of the year. But the advantages of the latter during eight months of the year, with free range under approximately normal conditions, abundant exercise, green feed, and all the other accompaniments of the farm range, are great enough to make all the difference between success and failure.

The only serious objections to the colony plan are that it makes more exposure for the attendant in stormy weather and that it requires more land. When the plant is located so that it is not necessary to carry water to the various pens, and self-feeders are supplied, the exposure is much reduced. Something must be endured by either method. The extra land is hardly an objection since the poultryman will generally find it more satisfactory to combine the chicken business with other lines of business at any rate. These will not only make the extra land profitable, but will incidentally benefit the chickens, whether the land is occupied by coops, affording shade, or cultivated crops with loose ground for the chickens to dig in, or is pastured by other live stock.

All of this applies to the chicken business in general—farm flocks as well as commercial—and whether a general plant is in contemplation, or some of the different specialties.

Regarding these specialties I want to say that the great money crop of the chicken business is eggs, and the various specialties have little chance of being successful when carried on alone. Broilers are profitable as a side line, but here again the poultryman meets the fact that his ability to care for growing stock is limited to a comparatively small number, and during nine months in the year he cannot get any suitable return for his efforts, unless he has the advantage of a special high-priced market. The cost of putting up a good winter plant is also out of all proportion to its value as a money maker. Capons, soft-roasters, crate-fattening and other fads are likely to prove snares and delusions. All of them pay under certain favorable and very limited conditions. One difficulty with them is that our central west markets generally have not yet learned to discriminate in the matter of quality, and will not pay enough to justify special effort and extra expense. Educating the public is always an expensive business. When a market for high-grade products can be found it may pay to take up seriously some of these special features, but the vast majority of poultrymen throughout this section will find the egg business the safest and most profitable line.

I suppose a talk on going into the chicken business should not close without at least some effort to answer the common question, "What is there in it?" But so long as the business depends amost absolutely on the skill of the poultryman, no exact answer can be given. There are few constant factors in the business. The cost of feeding a hen for one year will, however, with ordinary management (avoiding high-priced feeds) run from seventy-five cents to one dollar and twenty-five cents. One dollar may be taken as an average. This is for yarded hens, of course. Range hens may get through on seventy-five cents or less. These hens should average from eight to ten dozen eggs each per year, but the profit depends on the price which can be gotten for the eggs. Briefly, the common estimate of one dollar per hen seems fair, though I think that is better than most strictly commercial plants are doing. There are simple and entirely practical ways of raising that figure, as the business is developed, but they are not for the beginner.

Just a word in closing about the farm flocks. After years of criticism and derision of farm methods, we have gotten back nearly to our starting point, and the modern specialist plant is really an adaptation of the common farm method, wagon-shed, roost and all, for the most successful practical poultrymen are building houses now that are practically sheds. I am not advising extreme methods, but the present attitude of our authorities indicates that while farm practice may not always be what it should, the common farm method of open range and cold houses is nearly right. No specialist can compete with the farm flock in economy or low cost of production; conditions on the average farm are almost ideal for colony house methods and there are few farms which cannot profitably carry increased flocks. Especially in the hilly and cheap land sections should farmers give this matter earnest thought, for there is no agricultural crop or live stock industry which is capable of returning so large a net income on the investment. As long as farmers carry the chicken business as a side line and develop it conservatively along present lines, and steer clear of incubators and brooders, warm houses, high-priced feeds and fads in general, they will find the chicken business practical and as safe as any other line in agriculture, and more profitable.

The President: A few minutes will now be given for the discussion of this subject.

Mr. F. E. Clark, Medina: I would like to ask the speaker if he recommends letting his laying hens out in the day time in winter or keeping them confined. There is a difference of opinion up our way in regard to this matter.

Mr. Jackson: I do not think laying hens have any business being out in the winter time unless the weather is quite warm.

Mr. J. F. Keller, Newark: I would like to ask Mr. Jackson whether he thinks that a man on a farm can keep poultry, buy the feed, furnish the care, and sell his chickens in the ordinary market, and make a reasonable profit out of the business? It has been a question with me. I do not believe it can be done.

Mr. Jackson: I think you are right about it. There is no profit in chickens fed for the ordinary market after they have reached the weight of three or four pounds. Here is a case in point: I bought about fifty farm-raised chickens this fall with the expectation of making some money out of them by fattening them. I divided them into three different lots and fed them by three different methods. I added approximately one pound to their weight in three weeks' time, and the cost of that pound was between eleven and twelve cents. I bought the chickens for eight and one-half cents per pound and I netted ten cents per pound when I sold them.

Mr. G. C. Eversols, Pickaway: I want the gentleman to figure out the profit on a lot of hens running on a wheat field from the early spring until he markets them?

Mr. Jackson: It would be pretty hard on the wheat, but the chickens would be clear profit, if the wheat belonged to the other fellow. (Great laughter.)

Mr. William Markel, Pickaway: I would like to say that the speaker said that the farmer who is making this a side line should steer clear of the brooders and incubators. Now, that is what I have been trying to do for some time. In raising young chickens I have started out on this plan, making my coops three feet one way by four the other, eighteen inches high out of lath, covered top and sides with poultry netting and on the end of each coop I have a box about two feet square for the old hen to go into. I keep these in my orchard and I keep them three or four rods apart; and when a hen wants to set in the hen house I put the eggs in the box, and in the evening I put her on the nest, and shut her in the first night, and I have nothing to do but to carry feed and water to the pen once a day. The old hen comes out and goes back whenever she wants to, and she drinks and eats whenever she wants to. I usually set a good many at a time, and after they hatch I take the chickens and double them up, giving to each hen twenty-five little chickens in that little box and leave them right in there, and all I need to do is to throw feed into these coops. We allow the little chickens to run outside, and if a rain comes up they run right inside. They all go to their own coops. They run out and exercise and always go back to that same place. I leave them there until they are pretty large, but last year one night there were two hundred and sixty of them that disappeared. It was very handy for someone to come along, raise the lid and take the chickens out. I noticed that it was the smaller chickens that were left. They did not take any of these. Now that is something that we have to contend with in our country and I guess a good many other places. Just a few days ago at one place there were seventy taken. There are some men, it seems, that make that their business, even though it is a penitentiary offense, but they can succeed in doing it continually and not being found out. I believe it would be a good idea to have a state detective and where this chicken stealing is going on, have him go there.

Mr. Solomon Johnson, Williams: I was very much interested and pleased with the paper that was read by Mr. Jackson, and also with the discussion. We have our own troubles up in our part of the state without having any chicken stealing. I have been thinking about building a chicken house, and I had some papers from the United States Department of Agriculture about chicken houses, houses that can be moved here and there. I have thought of building a house twelve or fourteen feet wide and twenty feet long, making it permanent and putting a first class cement floor in it; and my wife has been insisting on having an incubator. Now, I have no information along either of these lines, and I would like to have Mr. Jackson give me some information as to whether it would pay. He condemned a permanent house. I would like to know whether it would pay to build a small permanent house as a side line in chicken raising. And also, whether it is advisable to use a first class incubator. I would like to have these questions directly answered.

Mr. Jackson: Mr. Chairman, I said I do not consider a permanent poultry house desirable. There may be conditions under which it is practically necessary, but I say, avoid them if possible. My own houses are nearly all permanent, because I did not understand the importance of portable houses when I began. As to the cement floor, I think you will not like it. I have one, and I am not satisfied with it. As to incubators, I do not believe that farmers ought to bother with them. Their use can only be learned by experience. It is an expensive way to learn, and the man who wants to raise only a few chickens will find it an expensive method.

Mr. G. E. Scott, Mt. Pleasant, Jefferson: I want to ask the gentleman where the ill success comes in, whether it is through the hatcher or brooder? Can't it be operated more successfully than the brooder, and put the chicks with the hen?

Mr. Jackson: It is a comparatively easy matter to get good hatchings from the incubator, but it is a difficult matter to get chickens that will live. I have been experimenting with the matter for several years, and it does not seem to matter much whether chickens are given to the brooder or to the hen as far as living is concerned. The brooder is vastly harder to manage. In talking with a prominent incubator manufacturer a year or two ago he told me that for some reason incubator chickens did not do well with hens.

Mr. E. A. Riggs, Raccoon Island, Gallia: I think that the conditions differ in different localities, and for that reason I would like to differ with the gentleman who presented the paper. He spoke about having summer conditions for the hens when they run out in the winter. I cannot understand how he is going to have summer conditions in the house when it is not warm. I have had experience and been successful, and it is necessary to have a warm house; and I think it is necessary to have a cement floor. We have a cement floor and have that floor covered with litter all the time. We have been successful in getting eggs, getting far above the average, of ten or eleven dozen per hen. I believe there is a profit for farmers to raise chickens. And I do say that every farmer raising chickens should confine them in the yard and not allow them to feed off the neighbors if they want to have the profit with a good conscience.

Mr. Jackson: I am willing to bear responsibility for everything I said, but I do not like being responsible for anything I did not say. If the gentleman finds anything in my paper about summer conditions in winter, I will take it all back. I do not consider summer conditions in winter necessary. I said that hens should never be turned out in winter except in warm weather.

Mr. J. F. Keller, Licking: I understand from chicken men that in grouping these chickens together in a lot, the chickens will mix up and will not find their proper home in the evening, and I have heard it said that it is a good thing to paint the coops different colors, one green, and one red and one white, and I want to know whether it is so. (Great laughter.)

Mr. Markel: I never tried it; I never had any difficulty from hens not returning to their proper homes, and it is only a short time until they become accustomed to their homes, unless there is some particular difficulty about it.

Mr. C. R. Wagner, Arlington, Hancock: Now, in choosing a variety of chickens, should we take into consideration alone the eggs? Is that the right way for the average farmer to do?

Mr. Jackson: I said the broilers are profitable as a side line.

Mr. T. C. Laylin, Huron: A question occurs upon the cement floor, the board and the earth floor. Now there is a philosophical question right there. You know stone is a good conductor of heat; cement is stone,—and wood is not. The moment the chickens' feet come in contact with that stone the heat is subtracted or taken from the feet. If you do not believe it, sit on a cold stone wall for a couple of hours. (Laughter.) Now the most profit is in eggs when they are the highest price. You cannot get eggs in winter unless you have a warm house for hens. I built a house after the plan of the one recommended by the Maine Experiment Station. In the front are two windows of glass and two of canvas where I can keep the hens from freezing. It has been pretty successful. My hens make more money because they take less trouble and less feed.

Mr. C. R. Wagner: I would like to ask you the size of it.

Mr. Laylin: The size is fourteen by twenty feet, and it is five feet high on the back side, and six feet in front, and the roof is covered with tar paper, ceiled inside with paper between siding and ceiling. The hens roost upon a platform three and one-half feet wide, and two and one-half feet from the floor, and the curtains let down from above, right in front of these hens, at night. And there last winter when the thermometer was below zero I never had a bit of trouble; and then there were two windows on the south side. During the night the air gets foul and we leave the windows up in the day time.

Mr. Wagner: What was the cost approximately?

Mr. Laylin: I cannot give you the cost, perhaps forty dollars.

Mr. Wagner: How many hens do you keep?

Mr. Laylin: I have at the present time about forty hens in there. That is a little too many. We are getting eggs and selling them at twenty-five cents a dozen.

Mr. Wagner: Do I understand you want a house with an open front?

Mr. Laylin: No, sir. An open front is cold. It cannot help but be cold. Even if the south wind blows in there it is cold.

Mr. Wagner: If it is shut?

Mr. Laylin: Mine is shut in cold weather. It can not be shut all the time. These windows are shut all the time.

Mr. George E. Scott: I want to support Homer Jackson in his assertions in regard to the cement floors. We have used the stone and ground floors but we find that the board floor is far superior for the health of the fowls in the winter season. We are building nothing but the board floor house. And so far as keeping the house warm is concerned, the house that is kept moderately warm and free from drafts is the kind of a poultry house to have. Do not allow too much outdoor exercise in weather like this morning. Although I believe we ought to keep a class of fowls that have a large amount of "fluff" on their bodies. We keep a certain class of fowls that can be gotten out every day during the winter and keep up in the egg laying business. But I want to support him in the thought that the board floor is practically the best floor to use in the hen house.

The President: We are very sorry, but we will have to bring this discussion to a close. We will now listen to an address by Mr. J. F. Keller, of Newark, Licking county, on

"HOW WE MAKE THE POTATO CROP PAY."

Not all farms are adapted to commercial potato growing or farmers suited for the business. The potato crop is more exacting than wheat or corn. It responds kindly to favorable conditions of soil, climatic influences and culture, but declines very rapidly where these are withheld.

It would not be wise for a farmer with limited experience and no previous preparation of his soil, to rush into commercial potato growing. The inevitable result would be a failure, or at least partly so.

Our experience in growing potatoes for commercial purposes covers a period of twenty-five years, and still we have much to learn. We reason thus because every season shows something new and valuable. Consequently our profits are increasing.

This paper will deal briefly with our method of "How We Make the Potato Crop Pay," and we extend our most hearty congratulations to the fellow with a better one. I may say in a general way that any well drained soil, except very gravelly or light sandy soils, may be put in condition to grow paying crops of potatoes. A clay loam soil is to be preferred. Alluvial soils carrying some sand are very good. The more tenacious clay soils will need to have considerable humus incorporated into them to give them the proper friability, and the power to retain moisture. From our experience we note the fact that the yield of the crop generally corresponds to the amount of available plant food in the soil where other conditions are normal, and as potatoes yield almost marvelously sometimes, it is not easy to pass the limit of profitable fertilization. The selection and application of fertilizers must be made judiciously in order to secure the best results.

We adapt a three-year rotation for potatoes. This is done for three reasons:

First—Nearly all scab germs perish in two years, hence our crop is affected very little with scab.

Second—We get excellent wheat and grass crops following potatoes.

Third—It gives us an excellent chance to apply our stable manure any time during the previous season to planting. Thirty to fifty bushel spreader loads are applied per acre, two applications of fifteen loads each. This manure is applied as early in winter as possible. To apply large quantities of manure just before planting roughens the skins of the tubers, making them less attractive, though it will not produce true scab. The stable manure furnishes an abundance of ammonia, but is somewhat deficient in phosphoric acid and potash. So to balance the fertilizer properly, we drill six hundred to eight hundred pounds of commercial fertilizer (16% phosphoric acid and 10% actual potash) per acre. Should the soil be low in available plant food, as high as fifteen hundred pounds per acre may be used to advantage. In this case I would drill in the row with the planter five hundred pounds and apply the balance with the grain drill. In no case apply more than six hundred pounds in the row per acre. Commercial fertilizers give smoothness, color and appearance to the tubers. Seed for our main crop is grown on our own farm. This reduces cost of seed to the minimum, an item where three hundred to four hundred bushels of seed are planted. We also find we get an earlier start with a better stand of plants from seed of our own growing. Our stock comes true to name and type, no mixtures to contend with, and we almost invariably get better yields than with northern grown seed. Very many of my customers say, "I had this or that variety of potato, but they have about run out, and I want to get good pure stock." Such is simply an admission of neglect. No farm crop should decline, but rather improve with skillful selection of the seed stock.

Our popular improved Green Mountain potato was evolved from the "Old Green Mountain'" by careful selection, according to our ideal of a perfect market and domestic potato, and we think it has no rival in the potato line. Our seed stock is carefully selected as to type, in the fall, and placed in crates in the potato cellar, where the temperature never goes below thirty-eight degrees; much colder than this weakens the germ. While the potato seems all right the growth will be slow and weak. We use every means to prevent sprouting, as this takes the life-giving properties from the potato.

Only in exceptional cases is fall plowing advisable for potatoes, but we like to plow very early in the spring. We plow as deep as can be done with riding plows, which is nine to ten inches. Deep plowing is important, and is a great factor in conserving moisture, which is so very necessary to the potato crop. Our experience points to the fact that a ten-inch soil will more than double a seven-inch soil in the matter of conserving moisture. It is a known fact that good crops of potatoes may be grown on thin land during a season of abundant and evenly distributed rainfall. Moisture is equally as important as fertility in growing potatoes.

In order to determine the amount of moisture necessary to produce a maximum yield of potatoes, the Colorado experiment station made a test by supplying water by irrigation to a field of potatoes. The results showed that it required forty inches of water put on in six applications to produce the best yield. Either more or less water reduced the yield and showed a greater per cent. of culls. Our humid climate does not require this amount of water. Nevertheless, it shows that this crop requires more moisture than most farm crops, and to conserve as much rainfall as possible, we should supply a large amount of humus to our soils. Plow early and deep, stir the surface often, and grow a heavy vined potato to blanket the surface. These are some of the most important means of conserving moisture. We use no jointer on our breaking plows. We want the rich top soil left between the furrow slices so as to be easily within reach of the delicate plant rootlets.

As to preparation for planting, while I would fine the soil with harrow and drag, I would advise against firming the soil with roller, as the spring rains will do this sufficiently, and besides, potatoes thrive best in a loose, airy soil. We use the medium size tubers for planting. The very large ones are no better, and are more expensive. The small ones will cause the crop to degenerate. Our seed potato cutter does satisfactory work on most sorts, and is speedy, as one man will cut sixty to seventy-five bushels per day, and will keep the two-horse planter furnished. Round potatoes, with few eyes, such as "Carman," are best cut by hand, as machine cutting leaves some pieces without eyes. In cutting the seed we should observe to leave sufficient meat with each piece to furnish abundant vital fluid to support the sprout till it has time to take root in the soil. Size of the pieces is more important than number of eyes. All perfect germinating sorts, such as "Green Mountain," "W. W. Mammoth," etc., may be safely cut to one eye. All imperfect or blind-eyed sorts, such as "Livingston," "Seneca Beauty," etc., should contain two or more eyes to the piece.

As to time of planting, will say we would plant as soon as possible after April 15th for central Ohio, and results almost invariably show the earliest planting yields best, next planting second best, etc. Usually the medium and late sorts are the best yielders. Peculiarities of the season may change this order, and the early varieties yield best, partly on this account, and in order to give a longer harvesting season, we plant about equal areas of early, medium and late sorts. We plant in drills three feet between rows, spacing the pieces fourteen inches apart in the rows, and aim to plant a uniform depth of four inches below the surface level.

Cultivation is promptly begun as soon as planting is over. First, we loosen the middles where the planter wheels and horses hoofs have packed the soil. Each gang of the riding cultivator works one middle, then we harrow as often as possible before the potatoes are up. This we regard the most important cultivation the crop ever gets. Don't let the weeds get much of a start in the potato field if you would avoid trouble. Now we go in with riding cultivators, with a weeder attachment fitted between the gangs, thus doing the plowing and weeding with one operation, and just at a time when the ground is loose and the weeding most effective. This simple little weeder attachment is very valuable to the potato grower. We practice level culture as long as possible, then in case wet weather forces weeds we can ridge some and smother the weeds.

First, we cultivate moderately deep, shallow as the crop throws out a network of roots. Cultivation usually ceases as the potatoes show full bloom. In case of a wet season we run a narrow, five-shovel, one-horse cultivator through the rows later to hold weeds in check. We have not used a hand hoe in our potato fields for fifteen years, and seldom have weeds of any consequence.

We spray one to five times for the Colorado beetle according to the abundance of the bugs, using a horse sprayer with one and a half pounds of Paris Green to fifty gallons of water. Do this in a dry time, if possible, as it takes two or three days to kill all the bugs. We have never been troubled with early blight. However, to prevent this, begin spraying when the potatoes are six inches high. One application of Bordeaux mixture every week or ten days for five or six sprayings will be found very effective, and will pay well where needed.

We allow the potatoes to remain in the ground two weeks after the vines die. This allows the skins to toughen, so they will not peel and the tubers bruise in handling. Some seasons searing of the tubers induces rot. Our elevator digger is capable of throwing out six hundred to one thousand bushels per day. We have dug nine hundred bushels in one day. The potatoes are picked into bushel crates and conveyed to the paved storage rooms on low down wagons, with broad platforms, so there is no high lifting. Our storage rooms accommodate about five thousand bushels, and are used through the winter for sheltering stock. All potatoes are picked up in the field.

When preparing the stock for the general markets we use a machine sorter, which makes three grades—firsts, seconds and culls. Culls are fed to hogs and are valued at one-half corn prices, bushel for bushel. Seconds sell on the farm at one-half the price of firsts, plus five cents per bushel when delivered.

Of recent years the demand far exceeds our ability to supply our seed potato trade. These went this season to nearly every state in the Union. One shipment was made to Ireland. Our price on most sorts is double the common market value. This covers cost of careful selection of the stock by hand sorting, sacks, correspondence, postage, etc.

When we were on the general market we seldom held our stock over till spring. When a fair price was obtainable in the fall we let it go. The item of shrinkage, which is about 20%, liability of decay, extra cost of labor for storage, etc., adds very materially to the cost of the stock, and amounts to anywhere from fifteen to twenty-five cents per bushel.

As our experience in the commercial potato business enlarges we are constantly more assured of the great value some varieties of potatoes possess over others. Many varieties have much to commend them but fail in some important quality, and are therefore worthless to the commercial grower. The following are essential qualities in a potato for commercial purposes:

First—Attractive appearance. A round, medium size, white potato sells best.

Second—One having strong germinating qualities, throwing strong, vigorous sprouts, thus assuring a good stand of plants. This quality is very important, as potatoes cannot be partially replanted to be of consequence.

Third—A rapid grower throwing a heavy vine. This quality is very important, as such are not so easily injured by disease and bugs, the ground becomes shaded by the vines by the time drouth threatens, hence moisture is conserved. Also weeds are held in check by the occupancy of the surface of the ground by the blanket of vines. Our "Green Mountain" throws a vine four to six feet and are never weedy.

To more fully illustrate the superior value of a heavy yielding potato to the commercial grower. This season twenty-seven of the leading varieties were grown in a test. All were surrounded with conditions exactly similar. The results showed a range from one hundred and twenty-five bushels per acre for "Bliss Triumph" to four hundred and sixty-four bushels per acre for our "Improved Green Mountain," a difference in yield of three hundred and thirty-nine bushels per acre. This would indicate a difference in value of one hundred and sixty-eight dollars and fifty cents per acre. The "Bliss Triumph" showed 17% of unsalable; "Improved Green Mountain" 4%, a difference of thirteen bushels of culls to the hundred. The "Improved Green Mountain" showed ninety-five bushels per acre above the second best yielding variety. The "Livingston" three hundred and sixty-nine bushels per acre. Second lowest sort, Vermont "Gold Coin," one hundred and fifty-six bushels per acre, a difference in favor of the "Livingston" of two hundred and thirteen bushels per acre. Vermont "Gold Coin" showed 8% culls; "Livingston," 4%. Heavy yielders generally show a light per cent. of culls. This is a very important item when the crop runs into the thousands of bushels.

You very justly ask me to give some figures as to profits. The figures submitted are an approximation for the five seasons past::

Average yield per acre, one hundred and seventy-five bushels for all varieties.

Average price on home market, fifty cents per bushel.

Value of crop per acre, eighty-seven dollars and fifty cents.

ITEMS OF EXPENSE.

Plowing	$2 00	Harvesting	7 00
Fitting the land	2 00	Marketing	5 00
Planting	1 00	Rental of land	8 00
Seed	5 00		
Cultivation	5 00	Total	$44 00
Spraying	1 00	Profit	43 50
Fertilizer	8 00		

Cost per bushel twenty-four and one-half cents.

The clear profit from our potato crop is about three times that of our corn crop; four times that of wheat, and five times that of the hay crop. To secure the greatest profits from the potato crop one must operate on a sufficiently extensive scale to warrant the purchase of every convenience for the handling of the crop speedily and economically; without these the labor expense item is too great for much profit.

Honesty pays in the potato business as well as elsewhere.

Treat your customers fairly.

It's honorable to get a good price by fair means.

Never give short weight or measure, and don't dress the top of the package with a few fancy specimens.

If you don't intend to give the potato crop timely attention quit the potato business before you begin.

SUMMARY.

Plant only good seed of heavy yielding varieties. Have your soil well drained. Fertilize as heavy as you think need be, then apply same amount a second time. The extra yield of the crop will more than compensate for this. All but the more soluble parts of the fertilizer will remain for future crops. Break the potato land early and deep. Pack the soil as little as possible. In preparing the surface for planting, cover the seed four inches deep. Never plant when the ground is wet. Begin cultivation as soon as planting is completed. Cultivate at least once a week, keeping the surface level as long as possible. Spray early and often for blight and beetles. Harvest as soon as the tubers will not roughen in handling. Store in a cool, dark place. Sell as soon as the price justifies. Don't try to grow potatoes commercially with primitive methods. You will become disgusted and quit the business.

With these suggestions properly observed, and the closest attention to every detail is "How We Make the Potato Crop Pay."

"Plow deep while sluggards sleep,
And you will have potatoes to sell and to keep."

The President: We now have a short time for the discussion of this subject.

Mr. C. A. McAteer: I would like to ask the gentleman if he has any knowledge whatever of the vineless potato? We have noticed lately several comments through the press about some man who has been very successful in the northern states in raising the vineless potato.

Mr. Keller: I have had no experience with a vineless potato. Have heard of such. Do not think I care to know more of it.

Mr. McAteer: Probably the gentleman on the program from Minnesota would know something about it?

Prof. W. R. Lazenby: I would like to ask Mr. Keller if, in his experience, he has not observed that the large yielding varieties are generally those that are comparatively near the seed, that is, those that have not been produced for a very long time, and that the varieties that we discard are those that have been grown for a good many years? It has always seemed to me that there is quite a difference between a seed potato and a true seed. I think we all agree that a seed like corn for example if properly selected will not run out, but is it not true that in a variety planted year after year, as a cutting, even under the best conditions, there is a tendency to a reduction in yield? This is an important question. In tests that were made at the experiment station some years ago in this line, we found that we got from the newer varieties, that is, those that had been recently produced by seed, in every instance the largest yield. Not the best quality. The quality seemingly improved year after year, but the yield seemed to decrease. Now, if Mr. Keller can give us a little light on that point, I would like to have him do so. It is the old question of "pedigree plants," by bud propagation.

Mr. Keller: My Green Mountain potato is the old original Green Mountain, and by the most careful selection we have improved it right along, while if the theory that friend Lazenby advocates were true, it would not be improving. The Green Mountain potato is improving with our handling every year and we expect it to improve right along. We do not change our seed potatoes. We had some of them fifteen years ago.

Mr. William Markel, Pickaway: I have some experience in this line. I have been growing potatoes for about forty years, and I believe I made the first successful potato planter, so far as I can find out. It planted forty acres the first year, and it has been planting potatoes every year since that. My experience is this: the Early Rose potato after I have grown it three or four years will go back in yield. I would always have to send East every two or three years to get a new start of seed. But I have another potato that is called the Mammoth Pearl. That potato has improved, for my yields are better than when I first got it. I always select the round potatoes to plant. It was thick at one end and pointed at the other, but now it is round; and that potato has increased in quality, size and yield by simply always selecting good seed every year and planting nothing else. But with the Early Rose I could not do that. For a great many years I have had a certain system of cutting my potatoes. I cut them always into four or six or eight pieces when planting them.

In regard to moving potatoes from the field, I would advise that you do not use crates. To move your potatoes from the field to your cellar, get grain sacks. You do not need to have a low wagon, but have a wagon with a bed on it, with a plank attached to the back end, and when you start to dig, divide your rows into as many stations as you have pickers; throw the empty sacks to the stations as you go down the line, and take the full sacks as you go back, without tying. I prefer to have boys, from twelve to fourteen years old, to men to pick potatoes. They will pick up more potatoes than men. Their backs stand it better. Give each boy a three gallon bucket,—not larger than that. Don't give him a basket because when he gets through the station he wants something to turn upside-down and sit down on until the potato digger comes around. Now divide your row into stations, let each pick a station, and let him sit down until the potato digger comes around. Put your potatoes into sacks and then catch hold of the top of the sack and set it down in your wagon; drive right home and empty this wagon, throw the sacks back into the wagon and drive right back to the field. In that way we have succeeded in moving in from five hundred to seven hundred bushels of potatoes in a day with eight or ten pickers.

Mr. W. W. Farnsworth, Lucas: The gentleman spoke about cutting seed potatoes. My experience has been to not cut them at all. That may not hold good if you have large potatoes and high priced seed, but I am absolutely certain from my own experience, corroborated by that of a great many others, that the larger the seed piece, the larger is the crop. Now this may be carried beyond the limit of profit. The extra cost may more than off-set the increased gain if carried to extremes. But my practice has been for years to select seed about the size of a walnut with the hull on it and plant that whole. Now that may seem radical, but the results have justified the practice, and if I were trying to grow the largest possible crop per acre, regardless of expense, I should use seed considerably larger. In some cases where the seed is high I might not get a yield large enough to justify the expense.

Mr. William Markel, Pickaway: You get too many top sprouts.

Mr. W. W. Farnsworth, Lucas: I have never had too many tops. We grow the Carmen and we have never had in that variety too many sprouts. In picking up potatoes, our practice has been to let them lie a few hours before picking them up. This refers to digging late in the fall. Our main crop is planted in June, from the 5th of June to the 4th of July, and consequently that brings the maturing of the crop in the fall after the extreme heat and moisture—ideal conditions for the potatoes. This applies to sandy loam soils. It probably would not succeed in Mr. Keller's soil.

Now, in regard to the picking up of potatoes. We have used crates, for the reason that it allows a better circulation of air. I have never tried the sacks, but there is not the chance with the sacks for the potatoes to dry out that there is in the crates. We never pick up potatoes until they have lain on the ground two or three hours. We can pick apples until nine or ten o'clock in the forenoon before commencing to pick up the potatoes. I do not object to the sand sticking to them, but I do not want to put them in with the sand moist. It gives them a dirty unsightly appearance.

Mr. Reuben Rankin, Fayette: I wan to ask a question. I am not a potato raiser at all. We have a sufficient amount raised for our own use. But I had always believed that the potato was not properly a seed. There has been some reference made here to improving the quality in planting these potatoes, and it has left a doubt in my mind. I have always believed it could not be done by simply planting the potato. Now, I can see it would not be advisable to plant an extremely small potato as it would not nourish the young plant until it would send out roots into the soil. But I do not see how even a change of identity can be made in planting the seed. Now it raises that question of doubt in my mind. I have been planting the small potatoes all the time; did it as a matter of economy more than anything else. May be it is wrong.

Mr. F. E. Clark, Medina: We have had a good deal of trouble with the wire worm. How can it be prevented?

Mr. Markel: Let me answer that right quick. It is not the wire worm, it is the potato scab.

Mr. Clark: No, sir; it is the wire worm.

Thereupon the president announced the following committees:

COMMITTEE ON NOMINATIONS.

George E. Scott, Jefferson county.
S. J. Baldwin, Summit county.
Charles McIntire, Muskingum county.

COMMITTEE ON RESOLUTIONS.

F. A. Derthick, Portage county.
R. W. Dunlap, Pickaway county.
A. H. Judy, Darke county.

Thereupon the institute took a recess until two o'clock in the afternoon.

TUESDAY AFTERNOON SESSION.

Promptly at two o'clock, President Roudebush called the meeting to order, and announced that the convention would be favored with music by the Williamson Sisters' Quartet.

The President: That king of forage crops, alfalfa, unlike civilization, has traveled eastward, and the next number upon the program will be by Willis Wing, of Mechanicsburg, Champaign county. It gives me great pleasure to introduce to you Willis Wing, the brother of the apostle of alfalfa, Joseph E. Wing.

"ALFALFA GROWING IN OHIO."

Mr. President, Ladies and Gentlemen: I regret that my brother could not have been here to defend his pet plant this afternoon, but since he could not be, you will have to put up with just a plain talk by a plain fellow who is a farmer, who farms right on the farm, and who is engaged in handling alfalfa; and I might mention incidentally that the press is set right there on our farm and is now baling away at a thirty ton rick, unless it has broken down; and about fourteen or fifteen hundred sheep are grazing on alfalfa.

Gentlemen, when I was a little boy my brother, Joe, who was older than I, used to ask me to take up a new book sometimes, and I remember with what hesitation and squirming I took up with a new book. I knew about the old books, the Swiss Family Robinson, and Robinson Crusoe and the Arabian Nights tales, but when he asked me to try Walter Scott's "Ivanhoe," that sounded rather hard and it looked "dry." But when I got into "Ivanhoe," it was fascinating, and so with the "Tale of Two Cities," and a host of other valuable books.

This feeling, I suppose, comes to us in our business operations. It is well that we should be conservative. It has been the strength of the State, perhaps in many ways, that it has been conservative; and yet in this day of new methods, in this day of specialties, in this day when we care as much for the luxuries of civilization as we do, suppose you were to present to a steel man a new process by which he could double his profits, would he hesitate? Would he not accept the challenge? Would he not investigate?

Gentlemen, I want to talk to you about a new plant, a new plant to many of you; and I want to talk to you a little first about its value. I speak from the standpoint of a feeder. We feed lambs at home, and we also feed a little flock of fine sheep. I want to say to you that I, as a feeder of alfalfa hay, placing it on a comparison with clover hay, have been able to secure, feeding it to Montana lambs, or to native lambs that we buy over this state, from eight to sixteen dollars a ton for that hay. I have one barn which contains one hundred and fifty tons. Some of my friends tell me it will not hold out that much, but if it does not, then I get more for it. I have talked with some of the persons in our section who feed clover—it is quite a feeding section, lots of sheep and cattle are fed—and they tell me they just get pay for their feed.

Now there is another way that I would ilke to call your attention to its value. We are trying this plan, and have been for a number of years. We have been selling this plant at our place for about twelve dollars a ton net, and we have been buying corn at about forty cents a bushel—varies but a little bit from pound for pound. There is a comparison between the corn and clover. I would like to give you another comparison between the alfalfa and the clover. A friend of mine who came up with me today has a man on his farm, and this man has in turn a hired man, and the hired man wanted some hay for his cow and so he goes to the employer and wanted to buy some hay. The employer said, "We have alfalfa and we have clover." When he was asked what he wanted for it, he said he wanted five dollars a ton for the clover and ten dollars a ton for the alfalfa. The hired man says, "You don't fool me that way. I will take the alfalfa."

Now, we have fourteen hundred head of lambs that are divided into two bunches and we are feeding them on clover hay and alfalfa hay. We got one of the worst "duckings" last summer on our hay we ever had. It rained for a week or ten days and that stuff stood there in the shock, and finally one day I told the boys to go in and open it out. Pretty soon one of them came up and said that the hay was spoiled, and gentlemen, I went down there and took a fork and went to work, and that hay was actually offensive in its odor. It looked bad. It looked rotten, and we had about forty-five acres in shock. But we opened it out, and after it got dry it looked better. There was some trace of mold in it, but after it got dry we put the best in the barn and the rest in a high rick. Now that was a pretty bad article of alfalfa. We have been feeding that alfalfa hay to the lambs up to New Year's day. It looked lots better when I opened it up, but it don't look so very good yet. The other bunch of three hundred and twenty-five had been fed on good clover. The clover harvest came at a later time, and the lambs that are being fed clover are receiving average clover. I instructed my brother to see that they had all the corn in addition they could consume. Those lambs had been on feed ten weeks when I weighed them the first of the year, and there is five pounds difference today in favor of the alfalfa fed lambs. The alfalfa fed lambs have received one-ninth of a pound of screenings in conjunction with this alfalfa. Both bunches have received same amount of ensilage.

Well, I will give you another test, and it was a careful test, conducted by a gentleman with a herd of Ayershire cattle in Pennsylvania. He had this herd of Ayershire cattle trying for a prize at the St. Louis exposition. They were testing these cattle prior to the exposition. They were fed on clover hay. He sent to us to try a carload of alfalfa, and he told us that he increased the milk volume of that herd 20%, and he instructed us, after that test was over, to keep him in alfalfa hay.

Now, I do not want to tell you gentlemen that clover hay is not a useful plant. Clover hay has done more for the State of Ohio than any other plant. I presume that is true. The corn plant has been a good plant, but clover has built up the land for corn and wheat and all other plants that have grown thereon. And so is corn fodder a nice forage, but none of you would speak of corn fodder as one of the principal fattening foods. You are practical feeders, and you will observe that none of you would think of corn fodder being as good as a food that was richer in protein as a fattening ration. I want to make a point right here. If you will take the analyses of the different foods, for instance, of corn fodder, clover, alfalfa hay, these three "roughages" that we raise here in this state, you will find that they have a certain value. For instance, the corn fodder may be worth two or three dollars a ton, and the clover may be worth six dollars a ton, and the alfalfa may be worth nine dollars a ton according to the analysis, but I want to say to you that in my belief the plant that shows nine dollars' worth of food value is worth nearly twice as much as the one that shows six, and the plant that shows six dollars' worth of food value, would be worth perhaps twice as much as the one that showed four dollars' worth. It is obvious that if you carry that to an extreme there is no food in corn fodder to fatten stock. I cannot fatten my lambs on corn fodder, but there is enough food in clover hay to fatten stock. I cannot fatten my lambs on clover hay. I cannot, finally, fatten them on alfalfa, but I can fatten them by adding a more concentrated form, like corn. That is the idea in a nut shell.

Now, gentlemen, these things that I have told you about alfalfa thus far have been truths. I have not drawn upon my imagination at all. I want to say just one more thing about its value. We have been able to develop a market for this hay, where one customer in the East buys one hundred and fifty tons, and that customer will take as much as we can furnish, and they have been willing to pay us three times what clover was worth. He could pay three times as much as he could pay for clover and then make more money on it and ship it out. We have had some of these customers for a number of years, and they recommend it to their friends. We never get a customer that we do not hold. We did get one of those, because he went to growing it himself. Now with this kind of a market, we have been able to buy only about one-seventh of the hay grown in our section, and nearly always in the hands of small operators. To the man who is feeding alfalfa, it has an intrinsic value. We have sold for years a beardless spring barley to grow alfalfa with. Barley is useful for a nurse crop of alfalfa, and to sell, but alfalfa has an intrinsic value. When you go out to get alfalfa you have got to go with the money in your pockets, and yet we had no competition. Nobody shipped alfalfa hay, and you could not ship it to a commission firm in Pittsburg, Cincinnati, Columbus or Dayton, because it has no established market value. And I want to say to you that we have a market developed, that if properly handled, would take care of the alfalfa Ohio is liable to produce in a good many years. Why, the market for alfalfa is enormous. For instance, there is the whole southern country that has to have hay, and they ship it clear from Colorado and Kansas, ship it into the cotton field district and over into Pennsylvania and over into Virginia. They need more hay than they can raise, and always will.

Now, I hope I have said a few things in praise of alfalfa hay and its value. Now, can we raise alfalfa in Ohio? Well, I traveled for two weeks on a special train down through Kentucky at the State's expense last September, and fellows down there are going to try raising alfalfa, and my gracious! if you could see the contrast in the soils between the State of Ohio and the State of Kentucky! The State of Kentucky has some rich land, but much of the state is worm and denuded of humus. I went over into Virginia. If you could see the contrast between the State of Ohio and the State of Virginia! Alfalfa, like clover, wants a lot of humus in the soil. Down there in Kentucky they have a red soil. I did not see any real black land in the state clear over to the Mississippi River. Of course, there may be some black land, but I did not see it. Well, I guess you can raise alfalfa in Ohio.

Now, a small boy said to his father: "Papa, shall I kill the cat?" His papa said: "No, no; don't kill the cat." But he said: "Papa, I have already killed the cat and skinned it." Now, that is what we have done up around Mechanicsburg. We have demonstrated beyond the shadow of a doubt that you can raise alfalfa. Within a radius of fifteen miles of our home I think there will be three thousand tons of hay raised this year. Three thousand tons of hay! That does not sound so awful large, still that is quite a lot of hay. It has been raised on a variety of soils, and not all of them rich soils by any means.

Of course, at our home—I speak to you now about glacial drift deposit, because some of you may come from the southern part of the state, which lies beyond this deposit—at Mechanicsburg, we have a very deep soil, rich in lime, lots of little pebbles down through that soil. We have the rich clay, red clay, the black soil and some peety soils, yet the limestone is there through all of it. It is in the glacial drift formation. I might say that where this glacial drift formation extends, generally alfalfa may be raised without the addition of anything but a little manure or a little humus.

There are some free-stone soils that seem all right for alfalfa. I do not understand that, but some of the professors here may. Down in Kentucky some of their soils are free-stone soils and will grow five or six tons to the acre. Now, one thing you must have to raise alfalfa, and that is a certain depth of soil. Captain Hill, over at Delaware, tried alfalfa. The soil was only two feet deep and it could not go down any deeper, and in February it would heave out. But that condition prevails over only a little part of the state. On our farm we have red clay soils and white soils and black ground and peety land, and we have been able to raise it over all of this land. The peety lands are the hardest. In the peety lands I used muriate of potash two hundred to two hundred and fifty pounds to the acre.

Now, there is one thing that alfalfa must have everywhere, and that is a drained soil. You must not put it in sour lands, or it will heave out quicker than clover will. You have seen sourdock. It will go straight down, but in the wet places it will come up like fence stakes. The alfalfa root goes straight down, unlike the clover, which sprangles. If you should be in a part of the state where sorrel grows—I do not mean sheep sorrel—and you know it is sour, you will have to add lime; you will have to put on a ton to the acre.

There are three things that will apply to this plant for this state. For one, it must have a drained soil—and you need a drained soil for all the rest of your crops. We have on our farm of three hundred and twenty acres, about fourteen miles of tile drainage scattered around where it will do the most good, and it is not thoroughly drained yet. You need a dry soil, that is a drained soil, and you need a sweet soil. And last, but not least, you need a fertile soil. Now, then, do not misunderstand me. When I say a fertile soil I mean that a new plant must have some fertility put in there to start on. You can take the poorest soil in Ohio, and stimulate that soil with an application of barnyard manure until the roots can go down to the subsoil and it will grow fine. I know we can do it because we have done it.

Now, then, there are those three important things to remember and then you can grow alfalfa over the State of Ohio. You must have a depth of sweet soil, and you must have a manured soil, and you must have a depth of sweet dry soil, and sweet from lime, or sweet before there was ever any lime added.

I have hesitated quite a little about what to say to you gentlemen about inoculation. You can find tubercles on the roots of leguminous plants that bring the nitrogen from the air and put it into the plant. Yet I appeal to you gentlemen who know something of bacterial life, if it does not sound reasonable to you that bacteria would multiply a little faster where there is a little humus? And if that is added, that they would multiply and take care of the situation? I know that the department of agriculture has a breed of bacteria that are hungry and specially active. If you want to inoculate, do not depend upon inoculation without a place for the bacteria to live around over your field—add stable manure, and then I will warrant you will not have any trouble.

I will not detain you very much longer, but I will just give you a recipe that you can get out of your agricultural papers for seeding. If you fellows expect to sow some alfalfa seed this spring, get in this winter, or as early in the spring as you can and plow your ground, if you have not demonstrated that alfalfa will do well for you. You go in there pretty soon and plow your ground. If you know it will do well, you may be able to disc in your seed as you would red clover. But plow your ground. There are two processes of seeding. The first way with nurse crop. Do not try it with oats, but with beardless spring barley. Up in our country it is all damaged, scarcely fit for seed at all. Get hold of some of that and sow it at the rate of a bushel to the acre, and sow not much less than fifteen pounds of alfalfa seed at the time in the spring that you would seed oats or spring barley and let the alfalfa seed go in front of the drill hoes. If it is covered two or three inches it will come up all right. Now, then, your troubles are over until after—in fact, you have done all you can do until after the barley is cut, and then the weeds will appear and it will be necessary to cut those weeds occasionally. The alfalfa will look spindling and look like it will not amount to anything. You clip that ground, clip it just as close as you can to the ground.

The other method of seeding would be to sow without a nurse crop, and by that method I think you might be a little surer of getting a crop than you would be with a nurse crop. If you are going to try that method, you want to be dead sure, after you plow the ground, to go in and disc it from time to time to as late as you dare risk, say the middle of June or first of July, but probably some time in June. After you disc it two or three times and kill the weeds, seed your alfalfa by itself.

The first fall do not turn your stock in there and tramp the ground and undo all the good that is done.

Now, I want to say a few things about alfalfa seed. If you buy alfalfa seed, do not buy it unless you see a sample. You can generally get it of your local elevator man. Go there and look at the seed and see that it is pure seed. There are several bad weeds that we may get in alfalfa seed. One is the "dodder" seed. We plow our alfalfa up about every three or four years, and re-seed, and the dodder has not harmed us much. The dodder seed is a very fine seed, but with a good mill should clean out. There is a bad seed that you get from Kansas, and that is the Canada thistle. Then there is the plantain that is talked a good deal about, and they have two or three kinds out there. Avoid brown seed. Seed to be good should be a bright yellow color. You want to avoid dead brown looking seed. There is another bad weed seed that you may get, and it is a sort of bearded foxtail that grows in Kansas. You can get enough good seed in the State of Ohio, and just insist on getting good seed, even if it costs you a little bit more money.

I know how it seems to tackle a new plant like alfalfa. I know when I was in the shop, one or two years, when the time came to plant corn, that was the time to plant corn, and I wanted to go home and plant corn. It becomes a sort of second nature to do things that we did about that time years and years ago, and I glory in planting corn today and going into the field and picking up the yellow and white corn, and I like to see the beautiful wheat crop. But, gentlemen, I think that alfalfa planting has a great place in the State of Ohio. I tell you there is one thing only that stands in our way up home and that is the labor problem. Why, a friend of mine who has about a thousand acres of land under his control said to me some years ago, after he knew about alfalfa and that you could raise four or five tons per acre in Ohio, that if he could be sure he could get eight dollars a ton for it, he would just put every foot of his land into alfalfa. But up there this summer the labor question has been such a question he did not know how to get labor any place. But I want to say this to you. Men like to work in gangs, and I have less trouble than most of my neighbors, because I put in a gang and keep them there. Last summer we put up four hundred tons of hay and we gave those men employment for a long time. At Springfield I find that labor is lower because it is centered there, cheaper than it is up at Mechanicsburg; and over a big portion of this state I suppose you are situated as we are at Mechanicsburg, and I suppose you would hesitate to have a crop on your farm which would take two or three times as much work and make four or five times as much money, but if you farmers who have two or three hundred acres or eight or nine hundred acres, want to handle alfalfa in a big way and give employment to labor for a period of weeks or months, I will venture to say that the labor will come.

I think that I have already taken up all the time that was given me and more too, but if there is any time for discussion, I shall be glad to answer any question.

Mr. C. W. Montgomery, Licking: Do the roots of your alfalfa ever clog your tile drains?

Mr. Wing: Yes, sir. Once in a while it might clog your tile, where water runs continuously throughout the summer, but we have never taken up but about a hundred yards of tile, and we have about fourteen miles of tile drain on our farm. We have grown alfalfa on every part of the farm.

Mr. Montgomery: How deep is your tile drain?

Mr. Wing: Two, three and some four feet deep.

Dr. H. M. Brown, Hillsboro, Highland: I would like to know whether I understood you right when I understood you to say that the lambs to which you fed alfalfa, you fed one-ninth of a pound of screenings, and that another bunch of lambs you fed clover hay, the latter bunch weighed five pounds less.

Mr. Wing: Yes, sir.

Dr. Brown: Will you explain that?

Mr. Wing: Because we fed the alfalfa lambs one-ninth of a pound of screenings, and the others we fed what they would eat.

Dr. Brown: Did I understand you to say you fed the clover lambs corn and screenings?

Mr. Wing: Yes, sir.

Dr. Brown: And that the alfalfa lambs had one-ninth of a pound of screenings and weighed five pounds more?

Mr. Wing: Yes, sir.

Mr. Reuben Rankin, Fayette: What do your screenings consist of?

Mr. Wing: Wheat screenings.

Mr. Cunningham, Knox: We have had some experience in alfalfa for years, and I have been thinking of a plan, and I want to ask Mr. Wing a question, whether it is feasible or not, and that is this: We have a field of twenty-five acres of alfalfa and of good blue grass. Would it be wise after the second crop is taken off to turn the cattle and lambs in on those two fields?

Mr. Wing: Not the first year.

Mr. Cunningham: Would you pasture after the frost comes?

Mr. Wing: I would not pasture after the frost comes, because once in a while you would get into trouble.

Dr. H. M. Brown, Highland: Now, I want to understand correctly what Mr. Wing said in reference to the lambs increasing more rapidly on alfalfa than on the other feed. The statement is made by Mr. Wing, and if it is proved by his brother Joe it is all right, I am sure. (Great laughter.) I do not know him as well. I would like to know if I understood him to say that these lambs were cut out and separated into bunches.

Mr. Wing: You would like to know if they were weighed?

Dr. Brown: Do you know these lambs were about equal weight?

Mr. Wing: A very uniform bunch of lambs. They had been selected from a bunch of Montana lambs.

Dr. Brown: Had that been your universal experience?

Mr. Wing: I never have been able to make a comparison between alfalfa and clover alone.

Dr. Brown: Have you used clover and alfalfa for lambs alone?

Mr. Wing: I never did that.

Dr. Brown: Have you ever weighed lambs in on alfalfa and weighed them out?

Mr. Wing: How do I understand you?

Dr. Brown: I mean to ask you if you have ever weighed a bunch of lambs and put them on alfalfa for a period, and then weighed them out and see what effect it would have?

Mr. Wing: Well, I used to think I could get the same kind of a gain on them that I did from corn, but I have taken that back. I get more gain on corn, but I feel satisfied that I could get them good enough on alfalfa alone so that the packers will take them.

Mr. Reuben Rankin: I am a little fearful that the declaration that alfalfa can be raised successfully might be disappointing when some of us try the experiment of raising it on Ohio land. I have not had any experience, only in a small way. Perhaps I might get at the point by briefly stating my experience. Last spring, a year ago, I concluded to try a small field of alfalfa, prompted by the suggestion of Mr. Wing. I followed the directions as given in breaking the land. There was a corn crop two years in succession, but it was on a small piece of land near the barnyard and we had kept up the fertility in good shape, and broke the ground very early in the spring, and then let it lie until we planted the corn about the last of May. In the meantime we disked up this ground regularly to keep the weeds down. Now the upland was a sort of red sandy loam, and there was a kind of a little slough that extended through the field. That was black soil, right where I expected to get alfalfa soil. The result was we got a splendid growth of alfalfa in the upland, and where we expected to get the best in the deep black soil, well drained, tile drain running right down through the swail we got the poorest results. Another peculiarity that I saw in a neighbor's field was this: At regular places all over the field where the corn shocks stood two years before you could see that there was a lack of alfalfa. I cannot account for that. The corn was all taken off this ground before the ground quit freezing. Now the reason I think we might not be able to raise alfalfa on the soils in Ohio might be borne out by the conditions. I want to say that I used the government method of applying these bacteria that we hear of. I do not know what good it did but I used it on the whole field.

Mr. Wing: I am glad the gentleman spoke of that. I want to say to you that we have tried alfalfa there for a matter of ten years, and we were on the point of abandoning it because we were not succeeding as we thought we ought to succeed. For years and years it was considered impracticable to raise it in the state. Our state department, our college farm, thought it was impracticable, and at Wooster they thought it was impracticable. Every agricultural paper in this part of the world thought so, and they all told us so until after we were raising it, and now they can raise it there or anywhere. And they say to me: "Wing, you talk so much about alfalfa raising. It is not a hard trick to do. Anybody can raise alfalfa."

The President: Gentlemen, the time for discussion has elapsed. There is a slang phrase that goes around that "there are others," and we have a practical illustration of it, and were it not for these others I would like to have you discuss this subject further. The next will be an address by Prof. Thomas Shaw, of St. Paul, Minnesota, on

"BREEDING LIVE STOCK ON THE FARM."

In some respects the art of breeding is like a great deep in which an intellectual giant may sink a thousand fathoms and more at the very first plunge. In other respects it is a broad shallow, in which a child intellectually may wade without any difficulty. In some respects the operation of its laws is so regular and plastic that the skilled breeder may almost mould and fashion at will. In other respects they are so erratic and subtle as to confound the most skillful, the results are so different from what he expected. The great differences thus resulting in some instances from even skillful breeding are doubtless the outcome of laws that are apparently antagonistic, but not really so. They are only apparently so because they are not yet sufficiently understood. It may be that they never will be, but, happily for the breeder, the results from the proper application of principles that are now well understood are so regular and uniform, that the man who diligently applies them, will, with unfailing certainty so improve the average of the animals in his stud, herd or flock, that they will be brought to a higher level.

LAWS THAT GOVERN BREEDING.

The known laws that govern breeding are three in number. They are known respectively as the law that like produces like, the law of variation and the law of atavism. The first and second of these laws are apparently antagonistic. The third, like a pendulum in the operations, swings between the two.

The law that like produces like means that the progeny shall be like the parents, not an exact fac-simile, for two parents are never found exactly alike, but in all essential features there will be a close resemblance. This resemblance will, with more or less of uniformity, extend to the physical form, to function, to habit, to disposition, and indeed to every feature of the organization. This law is the great magnacharta of the breeder. The results from the operation of this law are by no means uniform. They will nearly be so, however, in proportion as the parents have been purely bred, in proportion as they have been bred in line without having reached the danger point of weakened stamina, and in proportion as the parents are strong and vigorous.

The law of variation, or the law that like does not always produce like, is apparently antagonistic to the law of variation. It means that the progeny shall not always be like the parents. Though apparently antagonistic to the first law, it may be simply a part of the same, the differences being the result of modifying factors in transmission as yet not well understood, and until understood, beyond the control of man. In breeding pure blood animals these differences are not usually very well marked, though they are constantly present. Sometimes they are very great, as when, for instance, the progeny of horned parents are hornless, but such variations are of infrequent occurrence. Some have claimed that in transmission variations are more constant and greater than resemblances; in other words, the second law of breeding operates more strongly than the first law. In breeding pure bred animals this is not true. If it were so, the breeder would be on an uncertain sea; without sail or rudder. The only improvement that he could make would be through selection.

The presence of the law of variation is by no means inherently adverse to improvement in breeding. The result depends first, on the character of the variation, and second on the disposition made of the animals which thus vary. Variations are sometimes downward, in other instances they are upward. When downward the animals should be eliminated. When upward they should be retained for breeding. Were it not for variations in the direction of improvement, advance in breeding would be impossible. Viewed from this standpoint the law of variation is a blessing rather than the thorn which it sometimes proves to be.

The law of atavism is the law which, in transmission, determines that the progeny shall be like some remote ancestor. It is probably a branch of the first law of breeding acting in an erratic way. Like the law of variation, it is a disturbing factor in breeding. But it is more disturbing than the former in that it introduces variations that are undesirable. It resurrects from out the dead past what the breeders have been trying to eliminate. The frequent occurrence of a whit calf in the breeding of shorthorns which the breeders have been trying to avoid for generations, illustrates the disturbing character of this law. It may be that its existence is intended to compel the breeder to give careful attention to purity in blood lines, since its power wanes in proportion to the increase in the duration of the period covered by pure breeding.

Having thus briefly outlined these laws, the effort will be made to enlarge on some feature of their practical application to the operations of the breeder and also of every farmer who breeds even one animal on his farm. The points that will be more particularly dwelt upon are those which relate to the evidences of prepotency in sires, to the improvement of live stock through upgrading, and to the futility of promiscuous breeding in so far as it relates to the improvement of live stock.

PREPOTENCY IN THE SIRE.

Prepotency means the power possessed by a parent to transmit individual and breed properties to the progeny. The measure of its strength, however, is more evidenced in the former than the latter. Thus it is that prepotent sires produce uniformity in the stud, herd or flock. The uniformity thus produced is proportionate to the prepotency of the sire and the excellence of the uniformity is at least measurably proportionate to the excellence of the individuality in the sire. The importance, therefore, of possessing good and prepotent sires, cannot easily be overestimated. The truth that the sire is half the herd is only a half truth. He is as much more than half the herd as his prepotency exceeds that of each female parent in the same.

But how may it be known that a sire is prepotent before his prepotency has been actually proved, as evidenced in the offspring. The answer to this question is of all-absorbing interest to the breeder, for sires are usually chosen before they have begotten progeny. This raises the question as to the probable guarantee of prepotency. These include purity of breeding; line breeding in degree and individual vigor.

Other things being equal, a sire is prepotent in proportion to the duration of the time that he has been bred pure. This result follows from the continuous increase in the dominant blood elements with increase in duration in breeding without the introduction of alien blood. Whether there is a time limit to this increase is as yet an unsettled question. In other words, it is not yet certain that an animal from an ancestry bred pure for a thousand years will be appreciably more prepotent than an animal bred from an ancestry kept equally pure for five hundred years. These dominant blood elements having become thus fixed and stable, are transmitted with at least reasonable certainty to the progeny.

Other things being equal, a sire is usually prepotent in proportion as he is line bred or otherwise. Line bred means bred within the limits of one family for at least several generations. The closer the relationship at the outset of the line breeding and the longer the duration of such breeding the more prepotent the sire is likely to be. For instance, suppose a shorthorn sire is chosen from the Missie family of Cruikshank shorthorns. If the said sire is chosen amid progeny bred for generations from Missie sires and dams, no other shorthorn blood meanwhile having been introduced, the line is likely to be more prepotent than if drawn from progeny whose ancestry included members of various families of Cruikshank shorthorns.

Other things being equal, prepotency is strong in proportion as the sire is possessed of inherent vigor. This is in keeping with that other observed fact, that usually prepotency is stronger in an animal when at that age in which bodily vigor is greatest, rather than at an earlier or a later period in its life. The evidences of bodily vigor are form and action. The latter is usually spoken of as carriage, and, as an evidence of prepotency, it is probably something more important than bodily form. The evidences of bodily vigor are such as relate to strength and vigor for the breed. The most prominent of these, probably, is not chest size so much as chest capacity. Vigor in action may be nicely illustrated by observing the carriage of a Southdown male. The vigorous male steps quickly. He carries his head proudly His full eye observes everything. The slightest sound causes him to prick up his ears. Such a male purely bred is almost certain to be prepotent.

But what is meant by other things being equal? Simply this, that with each of the indications mentioned, the other indications shall be present in at least fair degree, and that the parents and progeny shall both be sustained with suitable food, fed in liberal, but not in excessive supply. For instance, long purity of breeding will count far more if linked with line breeding and bodily vigor, and so of each of the other indications, and all these will be more potent when the feeding and management are favorable to high development.

In addition to the indications mentioned, the performance of the immediate ancestors for several generations should be carefully noted. By performances is meant what the animals have done in speed attainment, milk, meat or wool production, according to the end for which they are kept. Nor should the fact ever be lost sight of, that high performance in the ancestry is valuable as it is near, and less valuable as it is remote. High performance in the immediate parent of a sire is of great value, but high performance in an ancestor of ten generations in the upward line of ascent is of but little account. This will be readily apparent when it is remembered that the blood properties of an ancestor of ten generations previously, are only present in an infinitesimal degree.

The claim, therefore, that an animal traces to some famous ancestor of many generations back, is of but little account. It can only deceive those who do not know. Excellence in performance in the near ancestry is not only valuable, but it is valuable in proportion as it is uniform in the near ancestry and far reaching in its comprehensiveness. By uniformity is meant evenness of performance in all the near generations, and by comprehensiveness the extent to which various desired qualities are present.

IMPROVEMENT THROUGH UP-GRADING.

By up-grading is meant the improvement of common stocks through the use of successive sires chosen from one and the same pure breed. For instance, when common females, it may be of mixed breeding, are mated with a pure bred Holstein sire, and when the female progeny continue to be thus mated in succeeding generations, the produce are termed grade Holsteins, and when this line of breeding is continued for several generations, they are termed high grade Holsteins. When good and prepotent sires are chosen, it is in a sense wonderful how quickly common stocks will be improved providing the food given is suitable and the care of the animals is proper.

When the process begins, mixed blood elements in the females is no detriment. It does not stand in the way of quick improvement. In fact, the reverse may be true, since every additional blood element lessens prepotency in the female. In other words, the less purely bred she is, the less the power that she will have to transmit her own properties. Consequently when mated with a purely bred prepotent sire, the preponderance of resemblance in the progeny is to the sire. The preponderance in all essential properties will come from him also, and in both instances because of his superior prepotency.

Analyze further this up-grading process. Suppose the foundation female is a ewe secured from the range and that she is possessed of the blood elements of a dozen different breeds. She is mated with a prepotent Southdown male. Let the difference in blood elements or properties between the two at the outset be represented by one hundred. The first thought would be that 50% of the properties or elements in the progeny would be inherited from the dam and the same from the sire. That is not true. More than 50% of those properties come from the sire, as many more as the prepotency of the sire in virtue of his purity of breeding exceeds that of the dam. Less than 50% of those properties come from the dam, as many less as her prepotency or power to transmit her properties is less than that of the sire, as a result of her mixed breeding. The preponderance in properties in the progeny inherited from the sire will exceed those inherited from the dam, as much as the power of the sire to transmit his own properties because of his strong prepotency, exceeds that of the dam to transmit hers, because of her weak prepotency. This explains why in the first instance of such mating, the progeny bear so strong a resemblance to the sire.

The difference in blood elements at the first, as previously stated, may be represented by one hundred. Now, since the progeny inherits far more largely in such breeding from the sire, the difference in those blood elements will have been reduced more than 50%. So far as the sire is concerned, the progeny will be possessed of far more than 50% of inherited properties from him. The exact per cent. represented by such inheritance cannot be exactly stated, but it would be approximately correct to say that 75% of properties in the progeny were inherited from the sire, which would leave 25% of the same to be inherited from the dam. Thus a great stride has been made in the very first mating. The difference in blood elements now between the Southdown sire and progeny will be represented by twenty-five instead of one hundred as at the first.

Mate with a Southdown male again and the progeny of the second generation will be possessed of approximately 90% of Southdown properties; of the third generation of approximately 97%, and of the fourth generation of approximately 99%. The progeny of the fifth generation will, in individuality and useful properties be practically equal to pure bred Southdowns. This wonderful transformation may be accomplished in five generations of such breeding. In other words the entire common stocks of farm animals in the United States could be transformed within the time named into pure breds, that is, into animals as good as pure breds for practical uses. At the present time, however, the supply of pure bred sires would be far too little to accomplish such an end within the time.

Suppose that instead of pure Southdowns, grade Southdown sires had been used. If the prepotency of those sires in each instance exceeded that of the dams with which they were mated, then there would be improvement. The improvement would be proportionate to the excess of that prepotency. But even on the supposition that the prepotency of each Southdown male was superior, variable elements would probably appear in the progeny as the outcome of these elements in the sires, and these would in some instances at least make improvement slower, while such sires were used, the level of improvement reached would never equal that made in the former instance, and improvement would be made very much more slowly. The advantage therefore, and profit from using only pure bred sires is clearly apparent when these can be secured without excessive cost.

Suppose again, that the Southdown sires shorn had been inferior individually, though purely bred, what would have happened? Why, because of their prepotency the result of the purity of their breeding they would sustain their own individual superiority on the progeny. This might not have followed in some instances because of the influence of atavic transmission, resulting in bequeathing properties to the progeny possessed by superior ancestors. As a rule, however, the transmission would more or less resemble the inferiority possessed by the sire. The breeders of grades are usually content with a very common or inferior pure bred, because of the cheaper cost, but to invest in such is clearly a mistake. The place for all those inferior sires is the block in the case of meat-making animals, and in the dray or van in the case of horses. The breeder who chooses sires thus, makes a grievous mistake. An inferior sire is *dear* at any price. He is dear as a gift. The extent to which such sires have been used by the breeders of grades has greatly retarded live stock improvement.

The view so widely held that while the progeny of the first mating are a great improvement on the females from which they are bred, the progeny of the second mating and also of succeeding generations, is likely to be inferior is a fallacy. In up-grading such a result would be clearly impossible. The improvement will be continuous until the level of the breed is reached from which the sires are chosen. It is in cross-breeding that such results sometimes follow, that is when sire and dam are mated each strong in the blood elements of a different pure breed. In such instances, usually but not always, the progeny is at least the equal of the sire or dam in useful properties, but not in prepotency. The improvement is probably the result of the renovating influence that would seem to inhere more or less in introduced alien blood. In succeeding generations, however, there may be a tendency to revert to one or the other of the two breeds thus mated, thus leading to uncertainty in the results and sometimes to retrogression.

PROMISCUOUS BREEDING.

What may be termed promiscuous breeding is the style of breeding most commonly practiced. The average farmer chooses a sire from a certain breed, it may be on the ground of convenience or because the breed for the time being is popular. Soon another breed becomes popular and a sire is chosen from that breed. It may be that in a lifetime sires have been used from half a dozen breeds.

Now, see what this means. Suppose for instance a pure Jersey sire is mated with a grade female of breeding that is much mixed, far more than 50% of properties in the progeny will be inherited from the Jersey. Suppose that now a pure Holstein sire is used in mating with the females thus begotten, the progeny will possess more than 50% of Holstein properties but the Jersey properties will be proportionately eliminated. Suppose again that pure Shorthorn sires are chosen to mate with the grade Holstein females then more than 50% of the properties will be Shorthorn, the Holstein properties will be proportionately reduced and the Jersey properties will be still further eliminated. Those who breed thus are like the man who, as often as he walks up the hill walks down again or like him who sails continuously in a circle. At the end of a lifetime of such breeding the breeder will find himself just where he was when he started.

Up-grading is the true system of improving live stock. Cross-breeding, that is the mating of two distinct breeds should have but little place in the operations of the farmer. It may be advantageous in some instances as when the dams and their progeny are to go to the block. It may be profitable, for instance, to cross aged Merino ewes with males of some better mutton breed and to prepare both for the market by fattening them on rich pastures, but ordinarily such crossing should stop with the first cross. To carry it further would, probably, for a time at least, introduce elements of reversion.

But, it may be asked, are there no instances in which alien blood may be introduced with animals that have been up-graded. There are such instances as when the animals thus graded have partially lost some useful property or properties. It is possible to restore those properties or at least to improve them greatly in some instances by the introduction of an outcross, that is, by making one cross from sires of another breed.

This may be illustrated in the condition of many of the high grade herds of Poland Chinas in the corn belt at the present time. Many of these have too little bone, too little stamina and weakened breeding properties. One cross from sire of either the large Yorkshire or Tamworth breeds would lead to wonderful improvement along those lines. The breeders could then fall back again upon Poland China blood if they desired to do so. Such teaching may sound like rank heresy to some, but that it rests on a sound basis will be found by all who put it to the test.

The way to improving the average stocks of the country is therefore so plain that anyone can understand. It is so entirely feasible that all may practice it and it is so inexpensive comparatively that every one may adopt it. But the thought should ever be present, that in all up-grading the food must be adapted to the needs of the animals, otherwise the improvement sought will be hindered in proportion as such adaptation is lacking.

Dr. H. M. Brown, Hillsboro: I have no doubt that Professor Shaw would be thankful for a discussion of his address, and by taking mild issue with him, enliven the occasion.

When one is conversant with his standing and ability along the lines of his labors, it is usual to accept without question, any statement he might make, although one might differ from him in opinion.

His handling of the subject, to my mind, admits of no serious criticism, except, perhaps, in connection with what he advocates in line breeding. Line breeding is nothing more or less than in-breeding. Professor Shaw draws a fine distinction between the two, but after all, they are one and the same thing. It is to be admitted that the great and pre-eminently perfect herd of cattle in this and other countries, have owed their excellence to a line of in-breeding. But in-breeding in the early days was practiced by men of transcendent ability along those lines, and with material that had not been weakened by previous attempts of the same character by less capable men. If one wishes to accentuate a particularly outstanding good trait of a family, in-breeding may be practiced, if the same good traits are not already the result of that very method, and too, one must be certain that that same family does not possess outstanding bad traits which will also be accentuated by the process. In-breeding is a two-edged sword and should not be wielded by a novice.

It has not been so very many years since a large proportion of the shorthorn cattle of Great Britain were ruined by the craze for certain fashionable strains of that excellent breed. The breeders, in catering to the demand, could not be induced to introduce new blood and behold! They were awakened to the fact that they had sacrificed constitution for a foolish whim. You will remember the successful old breeder who, in his declining years, decided to disperse his herd because he could not go on any longer with the same blood lines, and he felt that he was too old to take the great responsibility of introducing new blood into that celebrated herd, but he realized that its usefulness was at an end unless new vigor could be introduced. Professor Shaw advises against inbreeding and for line breeding. Suppose I buy a bull of a certain line, and breed him through the herd and then buy another of the same line and breed him to the same herd—necessarily the progeny of the first will be related to the second, and so on down the line until in and in-breeding of the closest kind will be the result.

I submit this for the purpose of stirring up the gentleman from Minnesota and getting him upon his mettle, and I know that additional interest will come out of what he shall have to say.

Professor Shaw: M r.Chairman, I would like to begin by asking the gentleman whether he has ever read carefully Shaw's book on Animal Breeding?

Dr. Brown: I have read a lot of Shaw's stuff of all kinds. (Laughter.) That is why I wish to wake him up. (Laughter.)

Professor Shaw: Well, then, I am all the more surprised that he has not recognized that Shaw and he think almost exactly alike. (Renewed laughter.)

Dr. Brown: The fact is, you are misleading us today in your talk. You did not do it in your writing.

Professor Shaw: Did you follow me through everything I said today?

Dr. Brown: Yes, sir; I hope I did. Pardon me for the bluntness of my preceding statement.

Professor Shaw: Then you and I agree. I said that a line-bred sire is more prepotent than one not bred in line. Nobody will deny that. I said, furthermore, the moment you saw the slightest deterioration in that line-bred animal, do not use him; there is one safeguard against danger. Now, here is another. I tried to describe an animal possessed of that inherent vigor that a good sire ought to have. Now, if you get a line-bred animal that comes up to the requirements of that animal I was describing, you need not be troubled about his being line-bred. There is one thought, however, that you advanced, that might be a deduction from what I said, but I did not intend that it should be so. I see that it is possible that I conveyed the thought that you ought to go to the same line every time and choose your animals. That would be dangerous and I do not believe in that. I do not think you ought to do that.

The President: Gentlemen, the time for the discussion of this subject has expired. The next number is an address by Mrs. George E. Scott, Mt. Pleasant, Ohio, on

"THE OUTLOOK OF THE AMERICAN FARM HOME."

It is ofttimes difficult to make comparison without prejudice. As a people our lives are divided into two distinct worlds—the real and the imaginary. On one hand we are confronted with problems of great importance, which involve the destinies of an intelligent, thinking people. On the other, the visionary looms up with a myriad of cunning devices, threatening to engulf us in a whirlpool of freaks and fancies. We face facts.

The new century dawns with a great revolution in the affairs of men—not alone in commercial fields, but more especially in the agricultural interests of our country. Never in history was prosperity more widespread. The past year has been marked by great blessing. Seed time and harvest have been crowned with barns heaped full, and bursting granaries, with prices on products that bring a sigh of satisfaction as we trace down the line of home markets—butter, thirty cents; eggs, thirty-eight cents and "still risin' "—we immediately try our sponge cake recipe (without eggs) and pronounce it fine. Poultry, dressed, twenty cents; wheat, ninety cents; oats, forty-five cents; corn, sixty cents; hogs, five dollars and fifty cents; beef, five dollars. Again, we are thankful the flour bin is full, butchering time over and a beef hanging in the smokehouse, with all sorts of fruits in the cellar, which, with cabbage, potatoes, turnips, parsnips, evaporated corn and now and then an onion stew, there can be an occasional change made in the daily menu, and in spite of "sugar trusts" and "Standard Oil trusts," the balance is on our side.

Yet with all this, it is a sorry fact that many farmers are leaving their farm homes and moving to cities and towns. The shops and stores and factories are reaching out with all the sparkling inducements which the human brain can conceive to attract the brightest and best the country can afford, which of necessity robs the farm home of many strong, helpful sons.

The pending evil of the day seems to be an inherent desire on the part of men to "get rich quick," to get something for nothing, short hours and big pay. It can't be done. He who gets "big pay" for short hours has somewhere along the line paid the price, either with labor of brawn or brain. From the foundation of the world the command was given: "Six days shalt thou labor." It was God's plan. The young man who leaves the farm expecting to find a "snap" would better think twice: The "snap" is right at home, if he labors as persistently and intelligently to find it.

In the wild pell mell rush for gain there seems little time for sober, honest, industrious thought or action. At the same time the capitalist steps up and invests in these same fertile acres a portion of his means for safety and profit. If it be the best investment for him, why should not the farmer be satisfied with his portion? It is the *farm labor* problem, looming up with all its gigantic proportions which brings discouragement to the farmer.

Have parents guarded the lives and thoughts of their boys and girls with the tender watchfulness bestowed upon the flocks and herds? Have their interests been our interests? Have we taken time to be their companions, to walk and talk and work and play—yes, play—with them? Or sympathize when things go wrong? Not to the degree of overindulgence, but with a love that begets love and a firmness that commands respectful obedience. Interesting them in the wonderful workings of nature in the development of plant life, and the mysterious growth of the animal under the kind, judicious treatment of its master? Implanting in the youthful mind that success in life does not come without labor? Labor, organization and happiness are so closely united that each seems dependent on the other, and in them lay the foundation principles upon which are builded the typical American farm homes. The heights of success are only gained through the untiring efforts of him who desires to reach them.

Is this state keeping pace with the rapid strides and demands of the times, placing within reach of the farmer's family those advantages which tend to broaden and elevate the standard of right living? Are we represented by men who have the interests of agriculture at heart and see that avenues are opened for the instruction and improvement of farmers' sons and daughters? Advance is the watchword. We need more education, not the skim-coat, so-called cramming system sort, but a development of intellect and common sense—an education along practical lines of industry that become a part of every-day life and come in touch with the laws of nature, a training in the sciences of agriculture, horticulture and domestic economy, so that intelligence may govern thought and action. Then life will be a joy instead of a burden; *work* will be a pleasure instead of a drudgery; the boys will love the farm and the farmer's daughter, and together they will keep up the old homestead, enjoying the rich fruition of honest labor, crowned with blessed content and success.

Never has the farm home extended so many attractions as today. Her advantages are legion, with all the modern appliances of improved machinery, both in the home and on the farm, labor is brought to a minimum. Think of it! A tiller of the soil sits by the fireside, has a thought, steps to his telephone and talks across the continent. Through the agency of the electric railroads the market for produce is brought to his door. With good pike roads leading in all directions he is no longer a "backwoodser." The combined forces of farmers' institutes and the grange are great factors in upbuilding the social and literary realm in which he lives; and not least among his advantages are the daily visits of "Uncle Sam" with his pack of literature, the daily papers, magazines, church periodicals, agricultural journals, children's papers, fashion papers, etc., more than the ordinary mind can digest. Wonderful—yes, truly wonderful.

There remains but one thing in the whole schedule of necessities that creative genius has failed to perfect—an "all-purpose dish washer." This will never be accomplished unless it comes along the line of perpetual motion, for thus it goes, breakfast dishes; dinner dishes; supper dishes; breakfast dishes, etc., etc.

"In the city or humble cot
'Tis just the same, it matters not.
On and on forever, like Tennyson's brook;
Men may come and men may go,
But I go on forever."

All devices fail, but the "get-at-it," and it will remain ever thus, until our husbands and sons are educated to the point of living upon—excelsior, served with chop sticks. But that is not for our generation.

Today the American farmer steps to the front in the business world. Secretary of Agriculture James Wilson, in his annual round up, says: "Never before in the history of this or any other nation on the face of the earth has such a tremendous result been attained. For the product of his brains and land and machinery the American farmer this year realized the enormous sum of six billion four hundred and fifty million dollars. His mortgages have been lifted, and from a borrower, he is today lending his profits. Should there be no relapse from his present position as a wealth producer, three years hence the farmer will find that the farming element, about 35% of the population, has produced an amount of wealth within ten years equal to one-half the entire national wealth produced in three centuries."

Would you exchange your fertile acres, and herds and flocks, with blessed content and peace of mind, for a pile of brick with the rush and noise of city streets? I love the country, the farm and the farm life; the pure air, the trees, the birds, the fruits and flowers; the hill tops and valleys; the gentle slope to the winding river; the abrupt cliff; the deep ravine; the beaten path that leads to the spring house, and the sheltered nook where it stands; the ripple of the water as it unceasingly plays on the old stone trough; the velvety grass and lowing, kine; the neigh of the horse and bleat of the lamb; the blossoms of the clover; the fields of golden grain and the rustle of the corn as it sways back and forth with the gentle breeze. I love all these, and more—the blessed content that comes at eventide, after a well rounded day of labor. And when the shadows lengthen I turn back to childhood and think of beloved parents and grandparents, and our imaginary trials, living it all over again, as when I played Auntie-come-to-see with dolls. Then the days grow shorter, the wind begins to whistle around the north corner of the house and the cheer of the first fire is seen. Sacred hearthstone with the open fire where the family gathers and where it stays. It is so in every home, however warm the house, the coming together is around the open fire. Have as many registers and radiators as you like, but for the sake of home, leave one cheerful spot around which the family may gather in the old-time nearness. And father with his papers, mother with her sewing, the children with books, music and games, are happy in their own companionship. The years come and go, each one seeming shorter, generations are born and pass away, but the *home*, who shall keep it?

Oh, woman! what part hast thou in this great problem? Born to soothe and comfort, to cheer and bless, thou who dost sway the destiny of a nation, not directly through the cast of the ballot, but through the mighty strength and power of womanhood, exert in the home building of strength of character and the development of the physical powers of the valiant men who rule our land, for when the millions of voices from the American farm homes are sounded, the nation hearkens. Art thou content?

And thou, oh man, who dost bear the burden of honest toil, and enjoy the rich harvest of a life which shall prove a benediction to humanity, with the farm as a training school, the medium through which may be developed the intellectual, moral and scientific powers, what greater attractions can the world afford?

If I had the gift of the artist rare,
To put my thoughts on canvas, there
I would paint for you a picture,
Not a palace, for the mixture
With its quiet, sombre hue
Would, I'm sure, present to you
All the tints of peace and cheer
That tend to make the farm life dear,
With the windings of the way
From the dawn of the wedding day.
Together they toil, for success in life,
This noble man, and his faithful wife.
And when their locks are silvering fast,
They talk together of days that are past.
Those who hear, do know and feel
"Life's worth the living," and seal
A deep conviction in each young mind
The dear old home is the best they'll find.
Then in the evening, at the set of the sun
When work seems ended, 'tis just begun.
Oh, for the wisdom to know and see
Life's work lives on—through eternity.

The President: A few years ago it was currently reported that there was something wrong in Denmark, and about that time one of those wise men that came from the East began to labor that he might eliminate it. The next subject for discussion is an address by Mr. H. E. Cook, of Denmark, New York. Gentlemen of the institute, it affords me great pleasure to introduce to you that distinguished dairyman and eliminator of bad odors, Mr. Cook.

"STABLE SANITATION AND ITS RELATION TO ANIMAL HUSBANDRY."

Mr. President and Farmers of Ohio, and Farmers' Wives: I am glad to see that there are at least a few married men in the State of Ohio. (Laughter.) It was my pleasure some few years ago to do institute work in a sister state, and I noticed that I was the last man on the program, and it finally occurred to me that there must be some coincidence or a reason for it, and I asked one of the workers why it was I was the last man on the program all the time, and he says: "I should think you would know by this time. It saves an adjournment." (Great laughter.)

Now, friends, we are to take up for a little time that which interests me as much or perhaps more at this time than any other farm question, or any other dairy question, the question of improving the sanitary conditions of our stables and our milk supplies. It seems to me it is the most vital question, perhaps, from three viewpoints:

First—The health of the animals.

Second—The character and quality of the milk.

Third—The proposition of securing more for our product.

The time has gone, and I hope forever, when we can produce milk under any circumstances, conditions and environments that we may see fit, and expect that it will be accepted in the market. I believe firmly that that time ought to be fixed by law, and ought to have been fixed long ago, when the general sanitary conditions surrounding all our barns should be thoroughly under control and inspection. I want to make a broad statement here, that any place that is fit to produce milk for human food, or for manufacture into butter or cheese, ought to be a place where your wife could go out and make bread. How many of you people who are keeping cows would be willing to have your wife make pastry in the cow stable? Now, I have been pretty nearly laughed off the platform for making that statement because it seemed ridiculous, but I submit to you men of intelligence whether it is a ridiculous proposition at all. There is no food that is so susceptible, so easily contaminated as milk, and yet I submit to you today that there is no other human food produced under conditions which are so unfavorable and absolutely dangerous to health. Is that overstating the thing? Well, you can discount it if you wish, but I will not. Take this question of tuberculosis. It interests every man who is keeping dairy cows, and the whole secret of the Bang system is nothing more or less than pure air and cleanliness. It seems to me that this word "sanitation" is pretty nearly the watchword of the hour wherever you go. Go into our cities and there sanitation is the great study. How can we do away with this great germ life that threatens us? And it is about this that we want to talk.

And again, considering the value of the milk as human food, from a business point of view, is there any reason why we should not consider that it is to our advantage to produce cleaner and better milk? It has become so important in the State of New York, that we have established a word that for the first time in this country means something, the word "certified." Certified milk has been legalized in our state so that it means something. Milk shall contain 4% of butter fat, and not less than thirty thousand colonies per centimeter, the average milk runs up into the millions. So that you see thirty thousand colonies per cubic centimeter is not high. Men are producing milk today that is almost sterile. How are you going to get at this? I do not want to deal in generalities. I want to start with the discussion that was before the house this morning. I am not sure what the general opinion may be in this state concerning concrete floors, but I thought from the discussion this morning there was a sentiment against them. I wonder if that is so? One man said that he would not have a cement floor in his hen house. Why, my dear friend, I would not have anything else. (Applause.) I tell you that wherever there is animal excreta, anything else than concrete is an abomination. We did not know that a few years ago. We did not know that we could use it, but today modern art—and it is modern art—has solved all of these problems, and concrete is being used everywhere. It was my pleasure last week to visit probably the finest concrete farm work in this country on the Gedney farms in our state, where they are building the whole thing, building the chimney, the floors, the ventilators, the cornice and even the spouts—every last thing built of concrete, imperishable, indestructible. No danger of fire, you cannot burn it up even if you tried to; and withal and above all, sanitary. It means cleanliness and durability. I believe that you are with me on this proposition, and I want to ask you now, how many of you are using concrete on your farms? (A large percentage of those present raised the hand.) May be you know more about it than I do. I am not sure, Mr. President, that I need to talk on this subject. These people are using it in great numbers.

(Here Mr. Cook referred to some drawings which he had placed upon the blackboard for illustration of the subject under discussion.)

Now, here are some things that represent, so far as my experience and observation may go, the best of concrete work at stable floor construction. It embodies much of my own and some that I borrowed. I built a stable five years ago, which in my judgment at that time embodied all good things in a sanitary stable. Some improvements have come along since in the minds of many men, and these I try to put in here. Now, we have had animals standing for six years on concrete with just a little bedding all that time, and there has been no trouble. We used to have trouble with bunches on the cows' knees. Did you ever see them? And some of my best friends told me that I would have more trouble. We have not had a single case on that floor.

(Here Mr. Cook fully explained the diagram upon the blackboard, illustrating his subject.)

Another question came up this morning, that of moisture and the floor being cold. The gentleman who was talking about it said it was cold, and suggested that if you didn't believe it, you sit down on the floor for a couple of days (laughter) and you would know it was cold. If you will put an old carpet down on the floor, you will hardly know whether you are on a concrete floor or a board floor. If you will spread a carpet of straw or dry planer shavings, you will hardly know it. Here comes something that reduces that difficulty to the minimum. This lower part represents the foundation (indicating on the blackboard), the concrete, the gravel, the cement, the sand. When you get that laid, put on a coat of ordinary single-ply tar paper, spread it on and stick it down with tar, and go on with another coat of paper and stick it down, and so on with another thickness, and so on, until you have about three coats. Now, go on with your work and finish it. This will absolutely stop any possibility of moisture coming in. Now you get the idea, and that is worth all that it costs to bring you here.

Question: Won't that shell off?

Mr. Cook: No, sir; no, sir; absolutely no. I did not know about that myself when I put my concrete down, but I have been watching it and it is just as solid as rock.

Question: Do I understand that the tar paper is placed right on the concrete?

Mr. Cook: Yes, sir.

Question: And that is the surface coat, right on top of that? How many coats of that?

Mr. Cook: Three coats of th tar paper, and the only care that is necessary is to get the air out. Be sure to work it down so there is no puff left.

Question: What thickness do you make it?

Mr. Cook: That will depend upon what it is to be used for. Whether your animals are going to walk across it or you are going to drive a team, that is a pretty hard strain. Where you will drive over it with a team I would make it three inches thick.

Question: Did I understand you to say you want the finishing coat four inches thick?

Mr. Cook: I said three. That is where the heaviest strain comes in this portion of the stable (indicating) where you are driving the horses. That might not be so necessary here as where I live, because there we have so much snow that manure is hauled on sleighs which makes for hard hauling. Here it might not be necessary to groove the floors.

Question: What do you mean by grooving the floors? Making a track for the wheels to run in?

Mr. Cook: No, just small grooves to prevent slipping.

We want a rough foundation. It has not been my experience, but it has been my observation that where the coarse gravel was used to bring about that condition, finally there was a tendency of the concrete to break up where it was so thin. Let me illustrate that. Say we have a piece of gravel and it comes to the surface and shows; now it means that on each side of that the cement is very thin. Now where the horses walk across that, it has a tendency to break to pieces.

Mr. Solomon Johnson, Stryker, Williams: I would not have an absolutely smooth cement floor in a barn if I could have it built for nothing. I like the rough floor. But I am going to build a chicken coop, and I am going to build it as I please. I shall put a cement floor in it and do it right. Now, how deep would you make the cement floor above the dirt floor?

Mr. Cook: What is the dirt foundation?

Mr. Johnson: It is very solid, heavy clay. It is the pure brown sand, gets a little bit yellow after the first foot.

Mr. Cook: I think I would drain underneath the hen house. I would not put anything under it. There is no strain on that floor. Two inches will be thick enough.

Mr. Johnson: How would you keep the rats out?

Mr. Cook: There isn't a rat on earth that will eat through two inches of well made concrete anywhere. Now just follow your sides right up to the sill, or to such a point that there is no danger of their getting in over the side. I have a hen house like that, and I come up the sides with the concrete. Or you can plaster it on lath, but it is as cheap to build the concrete two inches as it is to put on lath. I would tamp down the foundation good and hard.

Mr. A. A. Griffin of Van Wert: I have a little experience with cement floors in cow stables, to my detriment and disappointment. I lived a mason to put in a cement floor for me, and he made it as smooth as marble. It is slippery. I would like to ask the speaker how he would make the surface of a cow stable floor rough?

Mr. Cook: I do not know how to make the floor rough after it is once hard. Take a little board trowel, and after the surface is nicely set—now it is hard to tell just when that will come—we will say two or three hours, depending on how much water you have in it, but when you can work it with this board trowel, give it a rough finish, and you will find that that rough finish will stand up like sandpaper.

Mr. Griffin: I have used a broom very satisfactorily.

Mr. Cook: I have seen that tried; and I have seen them sift on sand and cement and coarse gravel, but the trouble is to get that uniform and even, and you will find that some of it will kick up, while the board trowel will give that rough finish that will be more satisfactory.

Mr. Solomon Johnson, Williams: I would like to ask if putting the tar paper on a cement floor in a cellar will keep the dampness out of a cellar?

Mr. Cook: I do not see any reason why it would not. I do not happen to know of any such instance.

The President: Gentlemen, the time for the discussion of this subject has expired.

Mr. Cook: Mr. President, if I understand this program correctly, we are to have a continuation of this discussion tomorrow?

The President: Yes, sir; that is correct.

Mr. Cook: And I wish that we might all come together again to finish up the topic, because if we leave this sanitary stable construction in the shape we have it in now, we shall have dead loads of trouble. If we can get together tomorrow we shall try to thresh it out, and I believe I can tell you how we can have a better place for our cows.

Thereupon the president announced that the institute would listen to the Williamson Sisters' Quartet, after which it would recess until ten o'clock, Wednesday morning.

WEDNESDAY MORNING SESSION.

At ten o'clock Wednesday morning President Roudebush called the institute to order, and after he made some announcements, the Williamson Sisters' Quartet entertained the delegates with music.

The President: Mr. Homer Southard, of Marysville, Ohio, will now give us an address on

"SHEEP AND THEIR ENVIRONMENTS."

The domesticated sheep were first brought to the American continent by the Spanish discoverers. Thus you see that sheep have been man's companion since the early ages, and shared in its civilization, as well as in all improvements down to the present time; and, whatever may be our advancement in the future, the sheep must be our companion and advance with us.

The individual tastes, also difference in climate, pastures and other environments, have led to the establishment of a large number of varieties of sheep. I will not take up each separate breed. They each have a place to fill, and the kind of a sheep to keep is the one best suited to the climate, soils, fancy of breeder and manner to be handled.

The sheep that suits me is one with a large, smooth body and well wooled. This is obtained by crossing the Rambouillet with the Delaine. This gives a large frame, as well as a heavy shearer of a fine grade of wool. This makes a good sheep to keep, and if you are raising mutton lambs, cross this sheep to one of the mutton breeds, the Southdown or Shropshire.

The science and art of breeding is a subject that will permit of a great amount of study. The mistakes made by breeders are due to lack of knowledge of the materials they are using; climate and soil are two things to be considered in changing a breed. The success of the American Merino has been largely due to the suitable climate.

The sheep, by centuries of naturalization, is adapted to a warm, dry climate, lowlands and mountains, and has shown great endurance in successfully meeting all difficulties; and it is found in New England, the dry plains of California, Central America, Australia and upon the ranges of the northwest, so it would be well for the shepherd to study the history of the breed, and its characteristics, before he makes costly investments.

The summer feeding of sheep is not difficult. There is no other animal that can be shifted from field to field in summer to consume the weeds, as can sheep, and when handled in this way, they will keep the fence corners clean. To what better use could you put your weeds than to convert them into mutton? But do not overlook the fact that they also enjoy and thrive on good grass. In order to keep a larger number on a small farm you should have small fields, and change them often, for this gives them short, tender grass, which they like best, and also keeps them healthy by not allowing them to remain upon one pasture too long.

Winter feeding is more difficult and requires more labor; except upon the range, the sheep are generally housed. In summer its selection of food is not interfered with, while in the winter its care is subject to errors as to quality and kind of foods. Winter pasture is almost indispensable to any well regulated sheep farm. This should be selected near to the barns. It will be a great help in wintering the sheep, and at the same time promotes health. If you are fattening a flock or raising winter lambs, you cannot handle them in this way. Sheep in winter should be fed on a ration that will keep them in good flesh, for it never pays to permit them to get thin. When you once get a sheep started down hill it is very hard to get it back in good flesh, and usually ends in the loss of sheep in the spring.

Breeding ewes should not be fed on corn alone, but should have a mixed ration of corn, oats, bran or oil meal. For roughage, the common red clover or alfalfa have no equal. *Never feed timothy to sheep.* Roots of some kind help to balance the ration in winter feeding.

The sheltering of sheep seems to be a subject that is greatly discussed. They are supplied with a heavy fleece to protect them and great warmth is not necessary, but they should be protected from all cold storms. The barn should be well ventilated and provided with a dry bed, with plenty of pure water before the sheep at all times.

It is practically impossible to tell in advance what grades of wool will be likely to bring the most profit to the breeders, as much depends upon fashion in manufactured goods. The sheep has a two-fold mission; he feeds us and also clothes us. This ought to insure him the very best of care.

Proper food is essential to a good growth of wool, as well as the maintenance of the sheep. The sheep is a gift of nature, but wool is a product of human genius and skill.

The Merino takes the first place in crossing on the inferior breeds to produce the best wool, for after two or three crosses it becomes practically Merino wool. Washing sheep to get the impurities out of the wool is fast being abandoned. The shepherd, as well as the sheep, is liable to injury of health by this practice, and unless the water is pure and the stream is free from mud, the wool very often comes out in worse shape than before it was washed. It is really necessary that you dip twice a year to insure the health of the flock, and in thus destroying all parasites the improved condition of the skin results in a greater growth of the fleece.

Hand shearing in a great many localities is almost abandoned, for the reason that it is impossible to procure shearers. It is fast coming to the machine shearing. The hand machine is practical for a small flock. The large plants in the West, where several shears are run by means of the shaft, with gasoline power, are very successful.

I had experience last year with one of the Stuart machines. The gas engine did not give steady power, but otherwise the machine was a success. I think we will soon see them perfected and in general use. It does a nice, smooth job, adding to the appearance of the flock. This is especially attractive if you have fat sheep ready for the market at this time of year.

You also get more wool by machine shearing. I have been raising hot-house lambs for several years, and find it profitable as well as intensely interesting, for, after the summer crops are stored and winter is upon us, what nicer sight could you picture than to open the barn door and there find the lambs lined up at their feed, or running a foot race in the separate quarters provided for them? This is a season of the year when you have plenty of time to care for them, and if you have proper quarters, you can save as large a per cent. of lambs as you could in May.

The success of the sheep business is in the feed and care. This is especially true of winter lambs. You must begin by feeding the ewes heavily, with the proper food, which is corn, oats, bran or oil meal, and good clover hay. At about two weeks of age lambs will begin to eat a little bran and clover heads; their feed should be ground corn, bran, oil meal and clover hay, which should be changed often, for in order to get them to fatten early they must have close attention.

They go to market at from eight to twelve weeks of age, weighing about thirty or thirty-five pounds, dressed. One point in favor of the winter lamb is that in the heated months the ewes are permitted to flesh up and the lambs are gone before grass, and escape the liabilities to disease in the summer months. There is a prevailing objection by the American people to the use of sheep flesh as food which we cannot understand, for it lives upon the cleanest of foods. It is considered, scientifically, to be the most nutritious and digestible of all flesh foods. The English consider mutton the best of meat, and I think we will soon see the prejudice removed, and the more general use of mutton as a food by our people will follow.

A FEW HINTS FOR THE SHEPHERD.

Sheep will build up any farm.

Give them plenty of pure water and never permit them to eat snow instead.

Keep the troughs clean.

Keep salt before them at all times.

Trim the feet spring and fall.

Shelter from cold storms; you cannot starve a profit out of a flock.

Muddy yards cause sore feet.

Feed at a regular time.

The year just past has been one of great profit to the sheepman, for the prices of both wool and mutton have not been so high for years.

When the sheep come trailing down the hillside or through the wooded pastures, at sunset, to their quarters, which the shepherd has so well provided for them against winter blasts, everything being done for their comfort, he has the right to sit by his fireside in perfect contentment, and allow his mind to revert to the profits and pleasures in store for him.

This is the version of the shepherd:

"Come, live with me and be my love,
And we will all the pleasure prove,
That hills and valleys, dale and field,
And all the craggy mountains yield.
There we will sit upon the rocks
And see the shepherds feed their flocks.
By shallow rivers, to whose falls
Melodious birds sing Madrigals.
There, will I make thee beds of roses,
And a thousand fragrant posies;
A cap of flowers and a kirtle,
Embroidered all with leaves of myrtle;
A gown made of the finest wool,
Which, from our pretty lambs we pull.
Fur lined slippers for the cold
With buckles of the purest gold.
A belt of straw and ivy buds,
With coral clasps and amber studs;
And if these pleasures may thee move,
Come, live with me and be my love.
Thy silver dishes for thy meat
As precious as the gods do eat,
Shall on an ivory table be,
Prepared each day for thee and me.
The shepherd's swains shall dance and sing
For thy delight each May morning;
If these delights thy mind may move,
Then live with me and be my love."

Mr. C. R. Wagner, Arlington, Hancock: The gentleman speaks of crossing the Delaine and the Rambouillet as being a most desirable type of sheep for him. Now, will he explain to the audience how that cross is made, and at what point in that cross does he hope to realize the highest type of sheep? And then also I will ask this question. He speaks of hothouse lambs. Does he use this cross for this purpose?

Mr. Southard: Mr. Chairman, I have a flock of Rambouillets. I was speaking of sheep in a general way, a grade sheep, not fullbloods.

Mr. Wagner: You spoke of crossing.

Mr. Southard: In the first place I like a sheep that has the size. The Rambouillet has that, and as a rule I think you get the desired fleece by a cross with a Delaine. Either the Rambouillets or Delaines make good mothers for hothouse lambs. I have found that to be true from experience. Does that answer your question?

Mr. Wagner: Do you use the dam of the Rambouillet?

Mr. Southard: The Rambouillet ewe and the Delaine ram, and you get the fleece that you desire.

Mr. Wagner: Is that the same cross that you use for your hothouse lambs?

Mr. Southard: Yes.

Mr. Reuben Rankin: Is that according to Professor Shaw's theory advanced yesterday?

Mr. Southard: Possibly not. That is one of my own, I guess. What I was after was the size and the right kind of fleece on that sheep's back. At the same time a good grade of wool, and then you are ready to handle that sheep any way you want to.

Mr. Rankin: Is it understood that the Merino ewe is a better mother?

Mr. Southard: Possibly. I have tried them both, and they are both good.

Professor Thomas Shaw, Minnesota: I would like to ask the gentleman if he thinks that in every sense as good a quality of mutton can be obtained from any sheep with Merino blood as from the dark faced mutton breed? I am speaking now of quality, understand.

Mr. Southard: I think so, as long as you use the dark face for the sire and get them crossed. I have raised mutton lambs without any of the mutton breed in them at all. I mean a hot-house lamb. It takes two or three weeks longer to mature, but you do not get that plump, smooth lamb that you get, of course, with the mutton breeds nor do they bring the same price in the market. But I would just as soon have a Delaine for a mother as the open wooled ewe.

Professor Shaw: Now, I would ask in the next place, how early are those hothouse lambs fattened? We know, of course, that hothouse lambs can be fattened any time the breeder wants them, but I was not so sure that they could be fattened at any time from the breeds to which this gentleman referred.

Mr. Southard: Well, it usually takes from two to three years to bring the ewes up to the real early lambs, by having them dropped one year in February, the next year in January and the next year in December, and in that way they come about a month earlier each year for two or three years.

Professor Shaw: Then, Mr. Chairman, one more question: What do you think of the plan, when you get that breeding habit established in the dam, by that I mean the habit of furnishing lambs sufficiently early, what do you think of the plan of selecting the very best type of males of one of the mutton breeds to use for a sire during the next year?

Mr. Southard: What do I think is the best mutton sire?

Professor Shaw: No, Mr. Chairman, that is not exactly what I mean. Do you think after the breeding habit is established in the Merino type of producing winter lambs, the plan would be a good one for a new generation to use sires of the dark faced breeds for the purpose of getting a higher quality of mutton lambs?

Mr. Southard: Yes, sir; I think it would.

Mr. J. F. Keller, Licking: Now, if your lamb's fleece is no consideration, why not use your Rambouillet ewe? I consider that the best mutton sheep in the world. I consider that they take the place of the Berkshire in the hog. The Rambouillet ewe and the Southdown ram.

Mr. Southard: That is all right, only I think you get a better fleece in ewes you keep to mix in the Delaine. They make good mothers.

Mr. W. H. McGrew, Franklin: I notice that Mr. Southard speaks of desiring to get a heavier fleece. The object of these hothouse lambs is to get them into mutton. I would like to know what advantage there is in crossing with the Delaine to get that heavier fleece if that lamb is to go to mutton?

Mr. Southard: Mr. Chairman, that has nothing to do with the lamb at all. The lamb is one part of the business and the fleece of the ewe is another. If you are going to keep a bunch of ewes year after year it is more beneficial, as far as the financial part is concerned, to have a ewe that will shear fifteen pounds of wool than one that will shear five pounds.

Question: You say the lambs are all gone by the time the summer season comes on?

Mr. Southard: About three months.

Mr. D. D. Harsh, Minerva, Stark: What is the use of bothering with the lamb for the fleece when you can raise it later cheaper with the fleece on?

Mr. Southard: You can raise it cheaper later, but it is a question whether it brings you as much as the earlier lamb.

Mr. D. D. Harsh: Mr. President, I would like to know why that fleece won't weigh as much in twelve months when that lamb is dropped in May as it would if dropped in December, November or February?

Mr. Southard: The only fleece I am talking about is the fleece of the ewe.

Mr. Harsh: That is just what we are talking about.

The President: Please state the question again, Mr. Harsh.

Mr. Harsh: Why is it that we want to raise this early lamb and get a fleece at the expense of raising a late lamb? Now he is talking about a fleece. Let us breed light wool, but when we want this heavy fleeced lamb why not breed them in May when we can raise them cheaper?

Mr. Southard: I spoke of the sheep in the way I was handling them. This is a big country in the sheep business, and anybody that wants to stick strictly to the mutton breeds has that privilege. When I spoke of fleece, I spoke of getting a set of ewes that had heavy fleeces, and then I believe they make just as good mothers as the mutton breed.

Mr. Harsh: That is all right, but it is misleading to say that we should breed these ewes in winter at a heavy expense for the purpose of that fleece. Let us breed our hothouse lambs in winter when we can raise them at a higher price, but let us raise our fleece sheep later.

Mr. Southard: That is all right. The cross I spoke of was to get well wooled mothers.

Mr. Hamilton, Licking: Does the speaker recommend raising cross-bred ewes in order to produce the lambs that he speaks of? That seems to be the point he makes.

Mr. Southard: Not necessarily. If you have the ewe that has the size and the fleece that suit you, you do not need to cross. The point I like is to get the size and the fleece, whether it is the cross or the pure blood.

Mr. Hamilton: You do not want the cross-bred mothers for raising these lambs?

Mr. Southard: Yes, sir; that is all right.

Mr. Wayne Smith, Elmwood, Franklin: Would the mother produce just as large a percentage of lambs from these ewes as she would from the mutton sheep? What is the difference in the number of lambs from pure bred mutton sheep?

Mr. Southard: Well, of course, you do not get so many twins from the fine wool ewes as you do from the mutton breeds, but we usually raise pretty close to one hundred per cent., and one lamb is enough for a ewe to take care of, and especially if you are raising a hothouse lamb where you should produce it quickly. But I was not advising everybody to raise hothouse lambs. There are a thousand and one ways of handling sheep, and everybody wants to take the breeds that he likes and handle them in the way that his farm is adapted to handling them.

The President: The time has now passed for the discussion of this subject. The sheep is decidedly in it today, and in view of the interest that is manifested we have given more time than we otherwise would have done. We will now listen to a song from the Williamson Sisters' Quartet.

The President: There are several persons on the program who will not be present this afternoon, and already one has been omitted in the forenoon. I hope that you followed Mr. Cook closely yesterday, and if you have any questions to ask him on the topic discussed yesterday, immediately after the discussion of the topics that are on today's program, please call them up. We are going to give you sufficient time today to ask all the questions you want to. You will remember that I told you yesterday that there was something wrong in Denmark, and there was a wise man that came out of the East, and he came to Ohio, to tell us how to eliminate these unsavory odors; and we think he has succeeded, because one of the state farmers' institutes of New York was held in his dairy barn. Now I do not know whether he is as modest as I am, but I have taken the liberty to call your attention to the fact, and that is certainly sufficient for everybody, unless he be a doubting Thomas. We will now have an address by Mr. H. E. Cook, of Denmark, N. Y., on

"VENTILATION AND CONSTRUCTION OF THE HOME FOR THE DAIRY COW."

Mr. Chairman, Ladies and Gentlemen: The chairman says that he will call me down if I get "too awful long." I never was accused of being short. (Laughter.)

I am glad to meet you again this morning. I will confess—because I have learned that confession is always good for the soul—that I was just a little bit nervous yesterday to face this intelligent audience, for I say to you I have never faced more active gray matter than I faced yesterday (laughter), and really, I thought a good many of you must have been born in New York. (Renewed laughter.)

I am somewhat easier this morning, because I think we broke the ice yesterday and got a bit acquainted, and that is a good deal. I feel this morning that I have more of your confidence and good will, and if you have ever had any experience in speaking from a platform you know that without the confidence and sympathy of the audience, it is pretty hard work. There is a fortunate feature connected with the platform work that I have observed, that the speaker does usually have the benefit of the doubt, and an audience will stand for a good many things, especially from institute men—farmers' institute men. I want to caution you. Don't stand too much from them. (Laughter.) I know them—a good many of them—and we have had a good many good ones from Ohio.

Now, this morning, I want to talk *with* you, and not *to* you, and I want you to be free to ask questions. Address the chair, because that is the right thing to do; but feel free at any time, and we will work together for a half hour, and see if we can evolve a better condition of affairs for our live stock; and while I speak specially in reference to the dairy cow, because she comes nearer to my business than any other live stock, I do believe that every farm of live stock should come under this head, *comfortable home.* I like that word "home," especially for these animals that need comfort, the dairy cow, and the dairy hen, if you please, where the product of the animal is a product of the animal conditions. No one has ever disputed that ideal conditions prevail for these animals in the warm and balmy days of June, when the temperature ranges from sixty to seventy-five degrees. No one has ever thought for a moment of standing upon a platform and advising in the month of June the running of the dairy cow into cold storage for a day or two at a temperature of thirty. Yet these same men in the winter time, when we talk of keeping these animals at a temperature of fifty degrees, will say at once, that won't do. It won't do to put the dairy cow in this high temperature and try to keep her healthy. We must run her into cold storage to give her vigor and vitality, if you please.

I am not sure that this question concerns you people who are interested in making beef and meat as much as it concerns us who are in the dairy business. But I have never been able to believe that when we came to a full understanding of the effect of pure air, that it is necessary to raise a steer under zero conditions. Of course, some of you possibly have been keeping your steers under a low temperature in the winter time; and I was interested at Urbana, Illinois, some time ago at some prospective experiments which were soon to be inaugurated whereby steers were to be kept under higher temperatures, under summer conditions in the winter time in pure air. The trouble is that we have come to associate warm air with bad air and we have thought they were synonymous terms, and as we find conditions in actual practice, upon many farms they are practically synonymous.

Now, then, you have opened the door into the stable where live stock is kept, in a small place and high temperatures, and dodged back. What is the matter? You say that is too hot. The animal cannot live in that temperature. I will wager that you cannot guess within ten to fifteen degrees of the temperature of that stable. If you put in a thermometer it will not register within ten to fifteen degrees of what you think it will. Why? Because of that offensive odor and foul air. I can take a man into a stable where the temperature is from fifty to sixty degrees, combined with pure air, and he will say he does not feel warm. Nothing oppressive about it. No bad odors. Nothing to make John change his clothes when he comes into the house, or, as the wife says, "Just hang up your whole outfit in the woodshed before you come in." (Laughter.)

I cannot remember, and I do not think the oldest man in this room can, when it was not advised that all kinds of live stock should have good ventilation, and yet, do you know that until Prof. King evolved a practical system, we were unable to build and expect definite results.

I believe Prof. King has done about as much for sanitation and the health of our live stock as Dr. Babcock has done for the simple analysis of our milk. All hail to that man! One man said the way to ventilate is through the windows; and another man says to build the building so big that the animal can have enough fresh air to last her from night until morning, and then we will open the windows and let the air blow through and then shut them up again, and the building will be so big the air will last her another installment of time. And another man made a big hole in the ceiling and let out all the bad air. That was better than nothing, but it always provided for the escape of the warm air and moisture to the loft above. I know a barn in which the rafters are all rotten because of the moisture that has gone up through that opening, and condensed. It is better than none. It is better than the stable that is tight and moist and wet, and when you go in your teeth chatter.

Now, a few moments to finish the construction, which is a part of the system of ventilation. We have a whole lot of barns in New York that have ventilation through the sides, cracks where you can throw a cat through.

Mr. U. T. Cox: We have that kind in Ohio.

Mr. Cook: They are better than those close tight barns with no ventilation. I can take you to many a herd in New York State that has been diseased by putting them in a modern barn without ventilation. The first mentioned I call wind breaks. The temperature fluctuates; it is a little warmer inside or a little colder. The temperature goes up and down every day, and interferes with production of milk and eggs. We want uniformity and we will build a little bigger than the old-fashioned barn and a little smaller than the new-fashioned barn. In other words, we will give one thousand pounds of live weight five hundred cubic feet of air space. That is enough. Even less, even four hundred feet of air space will do very well.

You take a barn that is built as I mentioned yesterday; it will require about thirty-five feet in width, divided into two rows, and stalls from three to four feet in width for each animal, depending on the size. The small

Channel Island cows will stand very well in three feet, but the larger Shorthorns and Holsteins will need four feet; and then with a ceiling not over eight or nine feet high, we have from four hundred to five hundred feet of air space. I know barns where the ceilings have been raised up to sixteen feet. What good is that air? Go to work and build a double-deck barn and put small animals in there. Animals are down near the floor, and that is where they are twenty hours out of the day, lying on the floor or pretty near the floor. Bring the ceiling down.

Now, in regard to the side wall construction. We want insulation, a dry side wall. Remember that a dairy cow, say a thousand pounds of animal weight, will throw off about seven pounds of moisture from the lungs and skin every twenty-four hours. Seven pounds of water, or about that, from the lungs and skin. We have got to get rid of that. Of course, where the barn is open and the wind is blowing through, it will take care of itself, but we lose control of the temperature. If we have a solid wall, it is almost impossible to keep the temperature inside of that building, with animal heat alone, high enough so that wall will keep dry. The circulation in the stable, with the best of ventilation, is very slow; and if we have condensation and moisture, the cheapest way to dry it off is to side up on the outside with single matched lumber and on the inside with the same and stuff it with straw or planer shavings. I know some will say that means rats and mice. It will not with the cement floor. With a plank floor I am free to say that it will. You may take the finest Georgia pine and side up the inside and the outside and finally there will be little cracks come in there, and a knot-hole over there, and if you have a "pencil" hole down there and another up there, the dead air space is gone. When the circulation of air starts up, the dead air space is gone, and when the cold air on the outside comes in contact with the inside wall, condensation follows, and if there is anything that is death to the animal life, it is moisture. They will stand cold. Man nor animals have very seldom died from low temperature, but from moist or damp air has come untold trouble.

Now, you can build the wall of concrete if you want to. You can build two thin walls, about two inches thick, with a very thin air space, and every two or two and a half feet tie them together with a barbed wire, or take any kind of iron and twist it around the concrete block and tie these walls together (indicating by diagram on the blackboard).

There is another way still, and I think a system that will strike you as more within your easy reach than any other, and that is to side up the outside of the building with reasonably good matched lumber, then the inside with any stuff. "Any old stuff" will do, just so that you have a foundation to work on, and then cover that with ordinary lath, and plaster that with concrete, two parts of sand and one of Portland cement. If you use the ordinary lath nail on the strip of lath, a one-half inch air chamber is sufficient. I do not believe that this is necessary here, for you do not have very cold weather. If I wasn't going to stuff it, I would match the inner ceiling before I plastered it. Now, you have a smooth wall, and I think you will agree with me that I am not advising anything that is unreasonably expensive. It comes within the reach of any man.

I would do the same thing over head. I do not happen to know of but one stable like this that is plastered over head, where the upper part of the barn is used for a driveway, and the question has come back many times whether it would be safe to plaster overhead where you are driving with heavy or even light loads, whether the plaster would stand for it. I do not happen to know of but one instance like that and it is standing all right up to date. Now, you have a surface that is smooth and germs cannot stick to it, and you can wash it. An imported preparation known as Ripolin Enamel is probably the best known preparation where certified milk is to be produced. It will stand scrubbing with boiling water and washing powder. But with the plaster or the wood the whitewash will do very well. I want to ask you how many of you whitewash your stables? A man rarely knows how to make whitewash, but his wife does. She is the best man on nine-tenths of the farms. This is in parenthensis. (Laughter.) I will try not to say anything that does not come from experience. (Renewed laughter.)

You take about three pounds of fresh stone lime and slake it with hot water and stay right with it—just stay with it. Do not go away and leave it; stir it and slake it, you know how. Here is a man who has made Bordeaux mixture. The same thing, but do not put in copper sulphate. Now, put in about a pound of salt and stir that in, and then if you want to do a real good job and have a preparation that is about as good as cold water paint, I would give it a dash of Portland cement, and you will have a whitewash that you can lean up against and it won't take you all the next day to brush your clothes. I used it in our stable a year ago when we held the meeting that the president mentioned at the outset. So many men wanted to know where we got the paint that we painted our stable with. It was not paint at all. It was just whitewash and put on when it was hot. That is half the battle. Do not mix a barrel full and use it when you feel like it.

Mr. Eudaly: You add enough hot water to slake it?

Mr. Cook: Water enough to slake it nicely.

Mr. Eudaly: You don't pretend to spray it on?

Mr. Cook: No, do not bother with the spray. I have tried the spray in whitewash.

Question: What is the consistency?

Mr. Cook: About the consistency of paste for paperhanging. When you bring the brush up the stuff comes up with it. Then one coat will cover better than three coats with a spray pump.

Mr. Eudaly: The spray is the best to put whitewash on the windows. (Laughter.)

Mr. Cook: About once a year put that on your henhouse and your stable, and it will fix the stable up so you will like to stay there, and—your wife will like to have you. (Laughter.)

Mr. Eudaly: What about the color?

Mr. Cook: White. The whiter the cement, the whiter it will be. Put in the salt when it is hot and you get it thoroughly dissolved.

Mr. Cushman: I would like to ask Mr. Cook if he puts this whitewash on with a regular whitewash brush?

Mr. Cook: A regular brush. Do not try a cheap way. Take a whitewash brush and rub it and do a good job, and then you have the stable light and nice, and put this on in your henhouse and horse barn and everywhere about once a year. The expenditure of a little time and money will make your place look new. And it is cheap, too.

Mr. Eudaly: Why do you use salt? Do you ever have any trouble from your cattle licking the whitewash?

Mr. Cook: No, sir.

Mr. W. A. Eudaly, Butler: I do.

Mr. Cook: Put in more salt. (Laughter.)

Mr. Eudaly: That is all very funny, but it don't answer the question.

Mr. Cook: Well, I do not know what to tell you.

Mr. Eudaly: Thank you, that is good. (Laughter.)

Mr. Cook: Give them more salt. You may have perhaps an ill-feed somewhere. Your animals may lack ash in their ration, from eating a large amount of corn, and they are blindly seeking for something, and that salt satisfies their craving.

Mr. Eudaly: I have never been able to get my cows so they would not like salt. Whenever I feed them, they do like salt.

Mr. Cook: Corn is deficient in ash which is just as important as protein, and when they do not get it, anything that aids a flow of saliva will satisfy, for the time, that craving—feed them a wheat bran and the trouble will cease.

Mr. Cook: I do not believe we would better take up that question further now, but return to the question of ventilation. Now, it is a question of providing the room with a constant in-flow of pure air and an out-flow of the foul vitiated air. And the King system does it, and that is why I want to describe it to you. It is the best that I know of. In the first place we want a flue from this room (indicating). In my judgment it will be a question of convenience whether we shall put that flue at the end of the barn or on the side of the barn; and whether we shall divide it up and put a number on each side of the barn, following the roof and bringing it out at the center, or whether we shall build it on the outside of the barn. Now, it is an important question that we carry that flue from the lowest point in the floor to the highest point in the building. I saw some very elaborate work last week where the flue was brought out right here (indicating) through the roof, and the ridge of the roof was two or three feet higher than the top of the flue. You know what it means with a chimney, and it is even worse with the ventilating flue, because our current of air is so much colder. You can overcome a draft with a stove, but not with these flues, and that current of air is loaded with moisture. It is a hard proposition to lift that moisture-laden air, and so we want to bring the flue to the highest point of the building. I believe that nine times out of ten the best way to build them is to divide and build them on each side of the barn and follow the roof. Don't build the flue between the rafters, for the air-current will get cold in cold weather, and in the winter season it is a very serious proposition, and the moisture in the air will condense and run back, and you will have to build a cistern under the flue to catch the water. We want to keep the moisture that is in the form of vapor in that form until it gets outdoors. I wonder if that is clear? We must not have condensation anywhere until it gets outdoors. I can look across for a half mile on a frosty morning when condensation takes place—on a clear frosty morning—and I can see those flues working; that steam, that condensation, that cloud, coming out of the top of those flues. It is nothing but moisture condensed the moment it strikes the air. It must not condense until it does strike the air. The principle is what we want to talk about. The man that has principle in him will evolve a practical method every time.

You can safely take down this rule: A flue should have a square foot for five cows. That is a safe proposition. That is, if the tube is a foot square, it has sufficient air space to carry out the foul air and the moisture-laden air for five cows. If you have twenty times as many cows, you will want twenty times as much space in the flues, and so on. I do not need to go into the arithmetic of it. It is not necessary to have the tube square. Have it any shape, only see to it that it is not built of galvanized iron. Many have been built of galvanized iron. That is all well enough in a stable where the temperature is high, but in the loft you have that quick condensation, and your flue will serve as a connection with the cistern. This tube needs covering, a cap over the top. What you want is the top of the flue exposed so that the current of air will drive rapidly across the top of it. You want to get the effect of the current of air across the top of the flue. That is half the battle. If you want to experiment a little, take a glass tube, put a pea in it and blow across the top of the tube and see the pea lift up. You form a partial vacuum in there and you get the best circulation.

Mr. George E. Scott, Mt. Pleasant: Does artificial heat in any way aid in taking the impure air out more rapidly?

Mr. Cook: Certainly it would, but it is not necessary. It is not necessary to do anything, provided we build right. I have one flue made from 2x4 scantlings, set up in the side (indicating), and boarded up on the inside with matched lumber, and that four inch space is stuffed with straw. I have another built of boards nailed tight together and paper between, and that follows the rafters up, and between the flue and the rafters I have stuffed with straw. Perhaps all these precautions in insulation would not be necessary with you because you do not have the low temperature, but they are with us.

Mr. U. T. Cox: Cement would be just the same as galvanized iron. Being cold it would condense the moisture?

Mr. Cook: Just the same. If you build it of concrete, you have to build the air chamber.

Mr. E. G. Cox, Lawrence: How would some of the mineral wood, or something of that character do?

Mr. Cook: That would do all right. It would be cheaper.

Mr. Eudaly, Butler: Do I understand that you want the outtake flue to start from the floor or from the ceiling?

Mr. Cook: From the floor. We want some means to take the air out of the upper part of the barn as well as the lower part. There are two ways of doing that. One is to place a door in the outtake near the ceiling to be opened and closed at will and the other way is to run a flue from the ceiling, connecting with the main flue at the barn ridge. The trouble with the flue is that it is in the way of the hay track, and pretty nearly every man has a hay track in his barn, and so it is the better way to put the opening in the direct flue; when your stable is too warm open the upper opening, and otherwise, take it out of the bottom. We do not touch our intake flues. They are open all the time; and when our temperature gets up to sixty degrees, then we blow off the steam through this upper flue and do not change the temperature.

Question: Would you apply the same principle to a hennery?

Mr. Cook: It will not work very well. If we had the time I could tell you why, but we haven't time now to finish up this intake business. If you will come to me afterwards I can prove to you in five minutes why ventilation in a henhouse is not half so important as whitewash, and a shovel once a week. If you use the shovel and the basket the question of ventilation will largely solve itself. (Laughter.)

The intakes are the important part of this system, and they must be scattered all the way around the room, and you will need in your climate as much intake air as you have outtake area. Please do not build them any other way. Men have tried and failed. Build them as you see in this little model. Take the air in here. (Fig. 1.) Now, you can put it into this hollow space in the wall and have it outside or have it inside, just as you please, and I would not build this under any circumstances over eight inches in diameter, and, I prefer them smaller and a greater number of them, for the reason that if you go into a room and the only way to ventilate is by a window, you drop the window down and you catch cold. Suppose you have the window down a foot and it is two feet wide, there are two square feet. Now, suppose you had the same volume of air coming in through a dozen places, you would have just as much cold air, but it would be diffused, strained through the room and you would not feel the cold air circulation. That is what you want to do in the cow-stable, bring it in in all parts of the building.

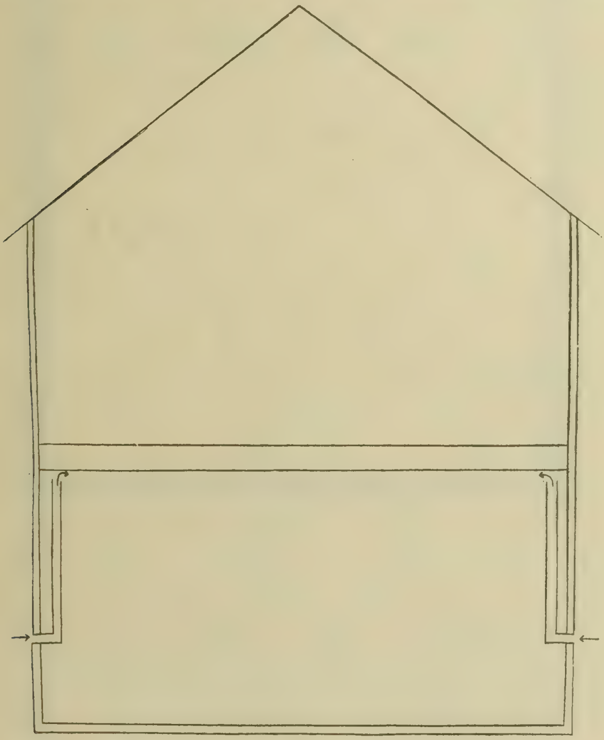


Fig. 1. The construction of ventilation flues. The intake.

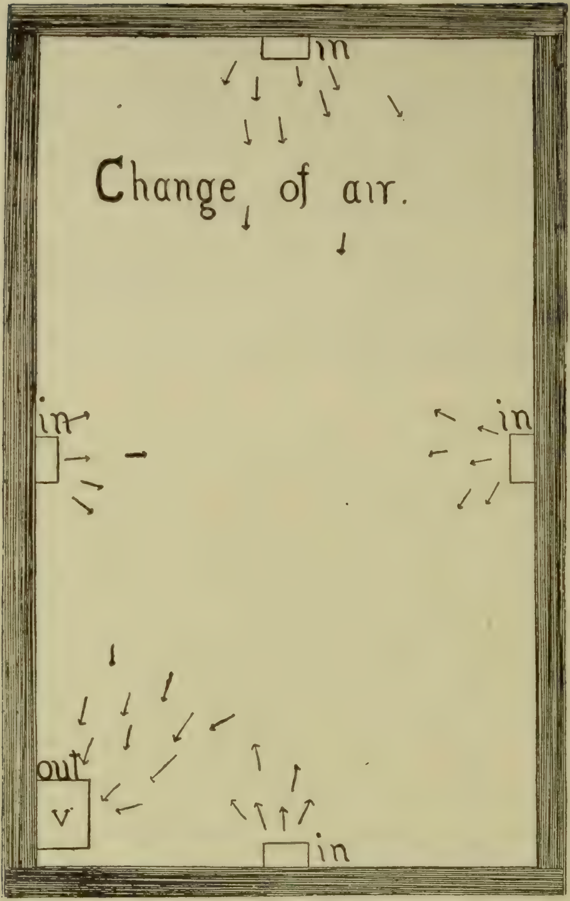


Fig. 2. The right way to place the ventilation flues.

Suppose our outtake flue is here; suppose our intake flue is off on this side. (Fig. 2.) The air is coming in here and going out on this side, what would become of this stable? It is easy to see. Now, suppose we put in those little flues all the way around? (Fig. 3.) Don't you see it makes a difference where the intakes are? It will not make any difference whether this outtake flue is in this corner or in this corner (indicating), or over here in the middle. Air is coming in on all sides of the room and it is bound to get out.

Mr. George E. Scott: Going back to your sanitation principles, what do you use to deodorize your stables? I presume you use something in your stables?

Mr. Cook: I do not know anything better for floor scrubbing and wall scrubbing, where there is no danger of its poisoning, than bi-chloride of mercury. For mangers, creolin or some of those carbolic preparations will do the work.

I will say that Mr. Dawley held a farmers' institute in my stable a year ago last March, a zero day, and we had four hundred people in the room with the cows.

Mr. Eudaly: In *addition* to the cows. (Laughter.)

Mr. Cook: Yes, sir; of course the cows came first, and we fed them there. The tables were arranged in the granary off from the stable, under the same conditions that I mentioned, and the table was carried into the stable between the cows and four hundred people ate their dinner. That is, ate what we had for them. And the people who were there from ten o'clock until four o'clock in the afternoon, told me (and there were seventy-five ladies in the crowd) that they were unable to detect any of the so-called stable odor after they left the stable.

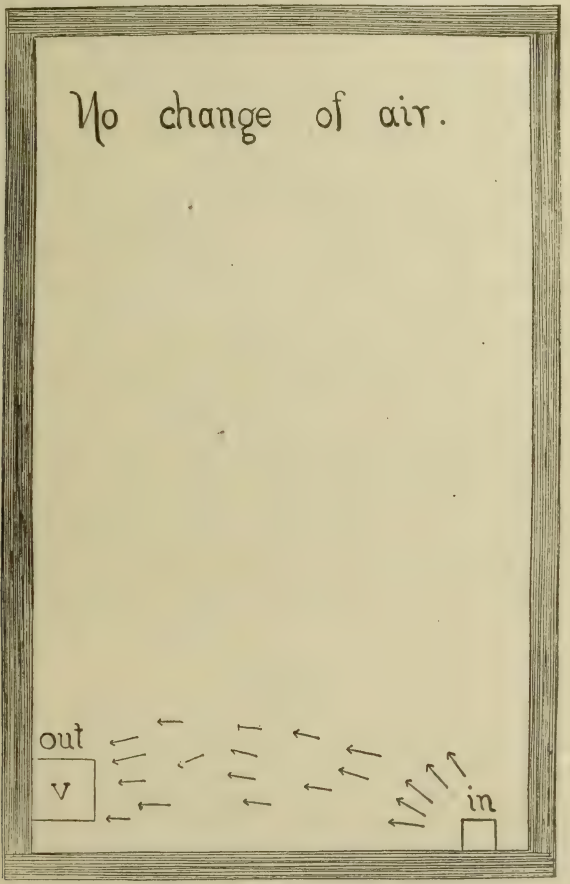


Fig. 3. The wrong way to place the ventilation flues.

I tell you, farmers, we are opening up a new era concerning the care of and ventilation for our live stock, especially as it pertains to the dairy cow. The time will come, and very soon too, when these old conditions of dirt and "stable flavor," will be a thing of the past. Do you know what "stable flavor," is in milk? Well, it is nothing but manure. That is all. The people will not tolerate any such thing. Gentlemen, I thank you for your attention. (Great applause.)

The President: Now we will have a little time for the questions you may desire to ask Mr. Cook.

Mr. W. F. Fleck, Antwerp, Paulding: I would like to ask Mr. Cook in regard to these in-takes, whether a common tile would not be a good way to convey that air in, or whether it would be better to convey it in between the outside and inside walls?

Mr. Cook: The question arises whether the flues can be built of ordinary closed tile, or whether the space between the boarding and the studding could be used. Either one will answer, only, of course, if you use the space between the studding, you would have to narrow it down to the regular size, either where it comes in or where it goes out, to restrict it to a proper volume. Now, to illustrate. If that flue was cut right there (indicating) through the wall, they cannot understand why it won't work. It will work when the wind blows from this side. When the wind changes, then the draft will change, and these flues will work half the time in and half out and defeat the object, and then we are taking the warm air out of the upper part of the room.

Mr. William Markel, Pickaway: I believe that there are a few things that may be said about concrete, as it is in its infancy, that will be of help to a great many of our farmers. I have used concrete floors in horse stables, and I have used coarse gravel with Portland cement, mixing it dry. If you make it too wet it bulges up. Make it just damp enough to tamp well, and tamp it down as solid as you can; then take two parts sand and one part cement and put a coat over it one-half inch thick, and you will have a floor that you can drive on with a team. And the cow-stables; many of our farmers are not dairymen and cannot go to the expense of arranging these stables just as a dairyman would, but we want to arrange for one or two cows. I would just have a hole in the wall about two feet square right back of the cows, that you can open up, and in about a minute clean the stable and close it up again, and then once in awhile remove it from the outside.

Mr. Cook: With your permission, Mr. Chairman, I want to make a suggestion in connection with what our friend has said; that concrete work well done is a permanent institution, and I would not advise any man, unless he is a mechanic, to do this work alone. Now, I have seen some abominally poor work done by a man to save five dollars.

Mr. Chamberlain: Amen!

Mr. Cook: I will tell you what does make a good combination; a mechanic who knows how to draw a line and a good level-headed farmer with him. They make a four-horse team. Finish the surface with a straight edge, not with a trowel, thereby saving the uneven surface which is not easily cleaned.

Mr. J. F. Keller, Licking: I would like to have Mr. Cook give the best temperature for the cow-stable.

Mr. Cook: I think from fifty to sixty degrees. I will tell you what

I think is a safe rule; the highest temperature at which you can carry them and keep pure air. Now, just let me give you another good index to ventilation. When you go into the stable and open the door and a volume of air meets you in the face—can you think of going into a stable when you dodge back as you open the door, from the air rushing out? Haven't you seen such conditions? Circulation is going the wrong way. Now, on the other hand if you get into the stable four or five feet before you can feel the change of temperature, the chances are that there is enough air coming into that stable through the ordinary flues. It is a very good index, indeed.

President Roudebush: The time for discussion has now passed and we will have to bring it to a close.

After some announcements, the institute recessed until two o'clock.

WEDNESDAY AFTERNOON SESSION.

At two o'clock in the afternoon, President Roudebush called the institute to order, and asked for the report of the committee on nominations, of which Mr. George E. Scott was chairman.

Mr. George E. Scott: Mr. President, the committee on nominations is ready to report. We propose the name of Mr. W. G. Farnsworth, of Lucas county, for president, and Mr. J. Al. Dobie, of Auglaize county, for vice-president. I move the adoption of this report.

Seconded by Mr. C. R. Wagner.

Whereupon the report was unanimously adopted.

The President: The next will be the report of the committee on resolutions, by F. A. Derthick, chairman.

Mr. Derthick: Mr. Chairman, our committee has had some difficulty in holding a full meeting, and the report is a little bit piece-meal. It may tax the ingenuity of the secretary a little, but we will do the best we can with it.

RESOLUTONS.

Resolved, That we favor the enactment of a law by our present legislature, requiring railroads to fence all private or farm grade crossings in the same manner as public road crossings are now fenced.

Whereas, There is now, and has been, a tremendous influx of undesirable immigrants into the United States of America who are criminally inclined individuals, undesirable citizens of the countries of their nativity and such people as cannot conceive of the high planes of our free American government, and

Whereas, These immigrants are imported for the sole benefit of trusts and corporate interests and are a detriment to our producing classes, and a menace to the peace and happiness of the American people, and

Whereas, The agricultural interests of the United States, and consequently the interests of the whole people of the United States, would be greatly enhanced by honest, industrious peasant labor from the agricultural districts of Europe, therefor be it

Resolved, That our Congressmen from Ohio and United States Senators, Charles F. Dick and J. B. Foraker, be and are hereby petitioned to use unceasing effort in behalf of the farmers of Ohio and the whole country for the exclusion of such aforesaid undesirable immigrants. That they exert a like energy to secure the co-operation of the United States Bureau of Immigration, our resident and foreign consuls and embassadors to bring in the desirable people from the rural districts of Europe who will be accepted in the homes of the American farmers. That they lay before the people of the rural districts of Europe the advantages to the immigrant to be derived by coming on the farms of America to establish homes for themselves either as laborers, tenants or landowners.

Resolved, That we regard the duty of Congress to be imperative in the revival, in some form, of the principles of reciprocal trade relations as enunciated in section 4 of the Dingley act. We believe that the doctrine enunciated by Mr. McKinley in his Buffalo speech, is absolutely essential to the welfare of the country, and we demand that steps be taken at once to carry out the policy pledged by the Republican party in the Dingley act to the country at large. We believe that the principles of section 4 of the Dingley act, if enacted into a law, would constitute a maximum and minimum tariff which should be put into force by the executive without further legislation, and we request you, as our representatives in Congress, to act promptly before irretrievable damage is done in this direction; to the end that we may retain the markets that we now have for all our agricultural and meat products, and extend the same throughout Continental Europe. And we also ask each member of this institute to write his Congressman and United States Senators, urging them to support President Roosevelt in his policy of reciprocity.

Resolved, That we favor the enactment of a law by Congress to prevent publishers from collecting, or attempting to collect, for newspapers and periodicals sent without a definite contract with, or order from, the parties to whom they are sent; also to prevent publishers from collecting, or attempting to collect, for newspapers and periodicals sent after the time paid for has expired.

Resolved, That we desire to record our attitude as favoring the following propositions now before Congress. Parcels post, postal currency, power of interstate commerce commission to fix railroad rates, national pure food laws, civil service (merit system).

DENATURIZED ALCOHOL.

WHEREAS, The present government tax on alcohol is two dollars and eight cents per gallon, thus prohibiting its use for mechanical and industrial purposes, and

WHEREAS, The removal of this tax would at once open a market in the United States annually for fifty millions of bushels of corn, or its equivalent in potatoes and other vegetables, therefore be it

Resolved, That we urge our representatives in Congress to labor for the removal of said tax from denaturized alcohol, to be used for mechanical and industrial purposes.

Resolved, That we express our most hearty appreciation of the work that has been and is now being done at the Agricultural Experiment Station, under the direction of Professor C. E. Thorne.

Resolved, That we appreciate the appropriations made by the last General Assembly for the support of our State Board of Agriculture and State Experiment Station, and we hope and expect that the Seventy-seventh General Assembly will make equally liberal appropriations.

Resolved, That we urge the Seventy-seventh General Assembly to make liberal appropriations for the College of Agriculture of our Ohio State University.

Resolved, That the present law, known as the Grout law, taxing oleomargarine, shall remain as a national statute, and urge every farmer, through his representative and senator, to see that it is not repealed, the tax reduced or the law in any way made ineffective by adverse legislation.

F. A. Derthick,
R. W. Dunlap,
A. H. Judy.

Mr. Begg, Allen: Mr. Chairman, for my part I see nothing objectionable in that report, and therefore, I move that it be adopted as read by the chairman of the committee.

Mr. Derthick: Mr. Chairman, Mr. Skinner wishes to incorporate as a part of this report, an additional resolution.

The President: I would rule that after we have accepted our report, the resolutions as reported by the committee, either singly or as a whole, that we take up that resolution.

Mr. Skinner: Very well.

Mr. Fleck, Paulding: Now, this morning, there were a number of us over there with Mr. Miller in the agricultural office, and there was a lack of funds for carrying on the work in the different counties, and we think there should be an increased appropriation.

Mr. Derthick: That is covered by the resolutions: "We appreciate the appropriations made by the last general assembly for the support of our state board of agriculture and state experiment station, and we hope and expect that the 77th general assembly will make *equally liberal* appropriations."

The President: Gentlemen, will you take up the report of the committee on resolutions as a whole?

Mr. J. P. Hine, Shinrock, Erie: Mr. Chairman, in regard to denaturized alcohol, the resolution is rather brief and incomplete, and a good many may not understand that and might object to adopting the resolutions as a whole without full information on that subject. I would say—perhaps many of you know as much or more than I do about this matter—that the alcohol is so treated as to make it impossible to use it as a beverage. Several of the foreign countries, France, Germany, Switzerland and others, have different methods of treating alcohol so that it cannot be used in any manner as a beverage, and alcohol treated in such a way is exempt from the government tax, which we all understand is almost the entire cost of our alcohol. This alcohol is used for the purposes of heating, lighting and power, and if this country could have alcohol for this purpose, it would be one of the greatest things for the farmer that has ever transpired, not only making a market for the products to manufacture this alcohol, but it would make us free from the grasp of the Standard oil and gasoline trust. We are using a great deal of gasoline now for farm power, and this alcohol would take its place to a large extent for all such purposes.

Dr. Harmon, Fairfield: Mr. President and gentlemen: I believe that in the matter of immigration we should keep out all criminals and all undesirable classes, and get the young people to come to this country who are needed here. We know there is a crying demand for more hands, we cannot get hands. The truth of it is that our young men are going to the cities and we cannot get men to run the farms and do the work necessary to be done. We know that here, not only in Ohio, but all over the South, they are asking for more labor. Now, we people are the descendants of people who came a few generations back from Europe, and now we propose to shut the door against these people. I do not think it is right. We need them here, but I do not think they should stop in New York, Boston, Philadelphia and Chicago. I believe every section of the state should make out a list of how many men they could take care of, and how many girls. How many of our women would be glad to have some poor girl that needs a place to make her living?

Mr. Derthick: The gentleman will see that his point is covered in the resolution. "Whereas, there is now and has been a tremendous influx of undesirable immigrants into the United States of America, who are criminally inclined individuals, undesirable citizens of the countries of their nativity and such people as cannot conceive of the high planes of our free American government"; also, "that they exert a like energy to secure the co-operation of the United States Bureau of Immigration and our resident and foreign consuls," * * * "to bring in desirable people from the rural districts of Europe who will be accepted in the homes of American farmers."

The President: Now, if there are any more remarks, make them brief and to the point. The motion is now on the adoption of the report of the committee on resolutions as a whole.

And thereupon the motion prevailed and the report was adopted.

Mr. H. P. Skinner, Meigs: Mr. President and gentlemen: I wish to say that it is no fault of the committee, and I think it is no fault of mine really, that this matter did not come in the regular way, through the regular channel, but it is merely the fault of conditions that we could not get together. This resolution was to go before this committee by the request of twenty-six members of this institute, and perhaps many more if they had a chance to sign it. I will read the resolution:

SUPPLEMENTAL RESOLUTION.

WHEREAS, There has been introduced in the State Senate a joint resolution of the Senate and House of Representatives for direct legislation through the initiative and referendum.

WHEREAS, The adoption of such a measure would, in the opinion of the State Farmers' Institute of Ohio, lead to the betterment of our politics and the rendering of government in state, county and city more responsive to the wishes of the people, and would serve as a protection to them, and

WHEREAS, Such resolution provides merely for giving an opportunity to the people to express their wishes upon this measure now, therefore be it

Resolved, By the State Farmers' Institute, in annual meeting assembled, that said joint resolution be endorsed and the State Farmers' Institute go on record as in favor of such joint resolution; be it formally

Resolved, That a copy of this resolution be transmitted to the clerk of the Senate and House of Representatives as a memorial petitioning the passage of said resolution.

Mr. H. P. Skinner, Meigs: I move, Mr. Chairman, the adoption of the resolution.

Dr. Chamberlain: Mr. Chairman, I would move that the resolution be referred to the committee on resolutions, with instructions that they incorporate it briefly in their No. 5, in connection with the parcels post, postal currency, interstate commerce commission, pure food laws and civil service. I therefore move, Mr. Chairman, that it be referred to the committee on resolutions, with instructions that it be embodied in their No. 5.

The President: You have heard the motion, gentlemen.

And thereupon the motion was carried.

And thereupon the motion prevailed to adopt the report of the committee on resolutions, including the idea as expressed in the resolution last referred to.

The President: In the program for this forenoon, one number was omitted for want of time. We will now have an address by Mr. H. A. Gossard, Entomologist of the Ohio Agricultural Experiment Station, Wooster, on

"A YEARLY PROGRAM OF ENTOMOLOGICAL PRACTICE FOR THE ORDINARY FARM."

To save every waste is the effort of all successful, present-day business men and of every great captain of industry. We know that the profits that have been added to the dividends of the Standard Oil Company by the utilization of the by-products of petroleum amount to several ordinary fortunes. The same is true of the side-economies of the great meat packing houses, of the steel trust, and of every great business. The sweepings of gold dust, gathered from the floors of the government mints, would satisfy quite an army of beggars waiting for the crumbs that fall from the tables of the rich. Men superintending businesses of lesser magnitudes, make use of the same principle, and the correct application of it often makes all the difference between their success or failure. The farmer is fast becoming a typical business man, following legitimate, tested business principles, and the splendid showing made for the farmers by Secretary Wilson, in his latest report from the United States Department of Agriculture, indicates that these methods are vastly increasing the number of country banks and the volume of money kept on deposit throughout the farming regions.

The general diffusion of knowledge regarding treatment for insect pests and plant diseases has very materially helped to increase the farmer's savings, and the importance of giving regular attention to this phase of farm practice is today realized as never before. To gain some adequate idea of how much the ordinary farmer loses per annum, owing to his insect enemies, let us consider the following data:

According to the United States census of 1900 there were, in Ohio, 276,719 farms, each farm containing an average area of 88.5 acres and yielding an average income of $929. Assuming that the number of farms was the same in 1904 as in 1900, and consequently of the same acreage, and accepting the crop statistics of the Ohio State Department for 1904, and of the Ohio State Board of Agriculture for 1903, we have the following average distribution of products per each average farm:

Wheat	105	bushels	at	$1 10=	$115 50
Corn	315	bushels	at	46=	144 90
Oats	135	bushels	at	32=	43 20
Hay, other than clover	9	tons	at	9 25=	83 25
Clover	3½	tons	at	8 00=	28 00
Irish potatoes	38	bushels	at	47=	17 86
Barley	3	bushels	at	52=	1 56
Apples	32	bushels	at	75=	24 00
Onions	3½	bushels	at	75=	2 63
Rye	1½	bushels	at	74=	1 11
Buckwheat	½	bushel	at	72=	36
Tobacco	142	pounds	at	8=	11 36
Sweet potatoes	½	bushel	at	1 25=	63
Peaches	1¼	bushels	at	1 50=	1 88
Pears	½	bushel	at	1 00=	50
Plums and cherries	½	bushel	at	2 00=	1 00
Other small fruit	1	bushel	at	3 00=	3 00
Grapes	64	pounds	at	3=	1 92
Garden truck, miscellaneous crops, etc. (estimated)					71 34
Live stock					375 00
Total average income of average Ohio farm of 88.5 acres					$929 00

So far as possible, the prices used in computing this table are the average prices which prevailed for the various products in the State of Ohio December 1, 1904, as given in the Year Book of the United States Department of Agriculture for that year. In case of articles for which no such quotations could be obtained, the price was taken from the market reports of the *Ohio Farmer*, issued during the natural marketing periods for such products. After estimating for all the items regarding which definite figures were obtainable, it became necessary, in order to bring the total income up to the required average, to divide the balance between garden stuff, miscellaneous crops, etc., and live stock. Under the latter head comes wool, all other dairy products than butter, eggs, poultry and meats, horses, mules, sheep, etc. If $71.34 be accredited to garden and miscellaneous vegetable products, $375 remains as the returns on live stock, thus giving a total of $929, the average income.

Let us now determine what might have been the income from such a farm if insects had not reduced it:

The wheat crop is sometimes almost wholly lost because of the ravages of Hessian fly, and no year passes without perceptible loss being inflicted by this insect. The wheat midge, or "red weevil," does about the same amount of damage per year as the Hessian fly. The jointworm inflicted severe damage in several localities the past summer. The chinch bug, the grain louse, the bulb-worm, the grasshopper, the army worm, the wire-worm, the white grub, the granary weevils, and several other insects, swell the damage until it certainly amounts to 20% of the crop under average conditions. If the returns given in the foregoing table represent 80% of the crop, the farmer lost $28.88 on the single item of wheat.

Taking together all the pests of corn from the field to the granary, such as cut-worms, the corn root-worm, the white grub, the corn-root louse, the ground web-worm, the ear-worm, the grasshopper, the chinch bug and the granary weevils, we may safely estimate that combined, they do 5% of damage. If $144.90 represents 95% of a crop, 5%, or the loss on corn, must have been $5.52.

Oats are attacked by grasshoppers, leafhoppers, army worms, plant lice, wire-worms, white grubs, etc. Perhaps the crop is damaged 5%, or the average farm loses $2.27 from shortage of the oat crop.

In like manner the following list of crops is considered with their more important insect enemies, and the estimates of damage done probably represent less than the actual truth:

HAY—Grasshoppers, white grubs, sod web-worms, cut-worms, leafhoppers, army worms, wire-worms, chinch bugs, etc. Estimated damage, 10%.

CLOVER—Grasshoppers, leafhoppers, cut-worms, root borers, stem borers, leaf weevil, seed midge, seed caterpillar, hay worm, and various caterpillars. Estimated injury, 10%.

IRISH POTATOES—White grubs, Colorado potato beetle, blister beetles, wire-worms, leafhoppers, flea-beetles, etc. Estimated injury, 5%.

BARLEY—Practically the same list of insects as given for wheat. Estimated injury, 10%.

APPLES—Coddling moth, plum curculio, apple curculio, San Jose scale, oyster shell scale, scurfy scale, various borers and caterpillars. Estimated damage, 33⅓%.

ONIONS—Thrips, root maggots, etc. Estimated damage, 5%.

RYE—Practically the same list as for wheat. Estimated injury, 10%.

BUCKWHEAT—Many of the insects already listed as affecting grasses and grains. Estimated damage, 5%.

TOBACCO—Flea-beetles, tobacco worms, cut-worms, bud-worms, grasshoppers, cigarette beetles, etc. Estimated damage, 5%.

SWEET POTATOES—Flea-beetles, tortoise beetles, etc. Estimated injury, 5%.

PEACHES—Curculio, borer, San Jose scale, bark beetles, twig borer and many others. Estimated injury, 33%.

PEARS—Coddling moth, San Jose scale, scurfy scale, curculio, various borers, blister mite, and numerous caterpillars. Estimated damage, 20%.

PLUMS AND CHERRIES—About the same list as for peaches. Estimated damage, 25%.

SMALL FRUITS—Strawberry crown borer, strawberry leaf roller, raspberry cane borer, raspberry gouty gall insect, currant sawfly, gooseberry fruit-worm, etc. Estimated damage, 20%.

GRAPES—Grapeberry moth, grapevine flea-beetle, root-worm, philloxera, rose bug, and many others. Estimated injury, 10%.

GARDEN TRUCK AND MISCELLANEOUS CROPS—Cut-worms, cabbage worms, root maggots, weevils, blister beetles, cucumber beetles, squash bugs, melon borers, grasshoppers, flea-beetles, plant lice, etc. Estimated damage, 10%.

LIVE STOCK—Lice, horse flies, horn flies, mosquitoes, bot flies, warble flies, ticks, etc. Estimated damage, 5%.

According to these estimates the table of average annual loss on the average farm becomes as follows:

Wheat	20%	Amount of loss, $28 88
Corn	5%	Amount of loss, 5 52
Oats	5%	Amount of loss, 2 27
Hay	10%	Amount of loss, 9 25
Clover	10%	Amount of loss, 3 11
Irish Potatoes	5%	Amount of loss, 94
Barley	10%	Amount of loss, 17
Apples	33%	Amount of loss, 12 00
Onions	5%	Amount of loss, 14
Rye	10%	Amount of loss, 12
Buckwheat	5%	Amount of loss, 2
Tobacco	5%	Amount of loss, 60
Sweet Potatoes	5%	Amount of loss, 7
Peaches	33%	Amount of loss, 94
Pears	20%	Amount of loss, 13
Plums and Cherries	25%	Amount of loss, 33
Small Fruit	20%	Amount of loss, 75
Grapes	10%	Amount of loss, 21
Live Stock	5%	Amount of loss, 19 74
Garden Truck and Miscellaneous Crops	10%	Amount of loss, 7 93
Total		$93 12

The total annual loss for the 276,719 farms of the state amounts to $25,768,073.28, or to a sum which would support the Ohio Agricultural Experiment Station on the basis of its expenditures for 1904, for five hundred and forty-seven years; or by a similar computation, it would sustain the Ohio State University, the Ohio State Board of Agriculture and the Ohio Agricultural Experiment Station, combined, for sixty-seven years; or it would nearly support the entire educational system of the state for one year.

Can this waste, amounting to more than 10% of the returns for the crop, be saved? Yes, a large fraction of it may be saved, but a definite program must be followed, and a systematic warfare must be waged against our insect enemies, else the spasmodic notice they are apt to receive (nearly always after most of their damage has been done), will do no more to save the loss than an occasional collection and sifting of the mint sweepings would do to swell Uncle Sam's coinage if the regular practice were to dump the unsifted sweepings in the refuse barrel.

The Experiment Station is endeavoring to furnish to the farmer a yearly program of practice that will enable him to forestall these insect enemies and assure a reasonable measure of success to his efforts. Since fungous diseases probably cause about as much damage as insect pests, and, in many cases, both may be fought at the same time by combining a fungicidal and an insecticidal spray, this program has hitherto taken the form of a spray calendar, dealing chiefly with spraying operations and with seed and soil treatments. While the preventive as well as the corrective factor has entered, in some degree at least, into the makeup of these calendars, no stress at all has been laid upon cultural operations as a mode of repression, nor has the utilization of our natural friends for such purpose been made prominent.

Indeed it would be impossible to include such matter within the limits of a spray calendar which, as its name implies, can only be intended as a brief manual on spraying. To give a more complete compendium of insect warfare has been my endeavor in a set of four manuals in which specific directions are given as to ways and means for the destruction of all the more important insect pests of the field, orchard and garden. The manual of practice for the winter months has already been published and distributed, and the other numbers are in course of preparation. Pending their completion, the following tentative program is submitted, covering those seasons of the year not included in the winter manual; the calendar furnished fits the average season at Wooster. Allowance must be made for variation in season in different years, and southern Ohio will find her seasons about ten days in advance of Wooster schedules:

MARCH—Clean up and burn all trash in fence corners and around the borders of fields and gardens to destroy hibernating insects, such as chinch bugs, squash bugs, potato bugs, etc. If unplowed wheat fields were badly infested with joint worms or straw worms the preceding season, and they are sufficiently dry, burn over the stubble and, in any case, plow under deeply. If orchards are infested with San Jose scale or other destructive armored scales, spray with lime-sulphur wash. If canker worms were numerous in the orchard the preceding season, band the trees with some sticky preparation early in the month. Prune out all canes of small fruits which contain borers, or the eggs of tree crickets or of similar pests. Put up suitable bird houses in the orchard and about the premises so as to entice insectivorous birds to nest in them and thus become regular tenants of the farm.

APRIL—Examine wheat fields to determine degree of infestation with Hessian fly; if badly infested plow up wheat and plant to other crops instead. In southern Ohio, in districts inhabited by the Harlequin cabbage bug or "calico back," plant out mustard near the plot reserved for cabbage, to serve as a trap crop; after cabbage is planted, when bugs collect on mustard, spray with kerosene or collect and burn them. After plowing for garden, scatter poisoned bran mash over the ground to kill cut-worms before the garden is planted. Renovate the poultry houses, using kerosene emulsion and whitewash freely if lice are present. Attend to all live stock that have become lousy. Examine the backs of cattle for warbles. If orchards are severely infested with canker worms, bud-worms, or case-bearers, apply an arsenical spray as soon as the buds appear ready to burst. This early spraying is hardly ever necessary in orchards which are regularly sprayed for coddling moth and other leaf-eating insects. These same insects make necessary a second spraying as soon as the leaf buds show green at the tips, and about ten days later, or just before the blossoms open give a third application.

MAY—Spray apples and pears with arsenate of lead for coddling worm and leaf-eating insects as soon as the petals fall from the blossoms. When cutting asparagus, leave a few shoots to grow and thus furnish traps upon which asparagus beetles will lay their eggs; when covered with eggs cut out trap shoots and burn. Larvæ of the asparagus beetle may be killed with pyrethrum. Keep lookout for green and black plant-lice on all kinds of trees and shrubs; if they are found in any numbers spray with whale oil soap solution, using one pound in four or five gallons of water. When ants begin to appear in numbers on leaves make a few holes in their nests, pour a teaspoonful of bisulphide of carbon into each hole and cover with earth. As soon as slugs appear on currant and gooseberry vines, dust over them a mixture of white hellebore and flour, one part of the former to four parts of the latter. Go over peach and plum orchards carefully and dig out and destroy all borers causing gumming about the roots or on the trunk. Make second spraying for coddling worm about a week or ten days after the first. Spray cabbages for cabbage worm with arsenate of lead to which a little soap has been added to make the spray stick. If Colorado potato beetle or flea-beetles appear on potato vines, spray with arsenate of lead. Use tobacco dust freely around squash, cucumber and melon vines to drive away and prevent breeding of the striped cucumber beetle. Keep earth around radish and cabbage plants slightly salty with commercial fertilizers to destroy root maggots. As soon as young of oyster shell scale or scurfy bark louse are noticed hatching on orchard or other trees spray with whale oil soap or kerosene emulsion; use one pound of whale oil soap to five gallons of water; dilute kerosene emulsion with nine parts of water. The last week in May is usually the time for this scale spraying. Make a second spraying about a week after the first. Keep the rotation principle in mind when planting corn so as to avoid the root-worm. If young grasshoppers appear in great numbers, poison with bran mash or with poisoned clover, or use hopperdozers.

June—Continue keeping watch on the garden for the same enemies that begin to appear in late May, for many of them are at their worst in June; the same remedies will apply. Ants, plant-lice, cabbage worms, root-maggots on radishes and cabbages, potato beetles, flea-beetles and cucumber beetles and various slugs become quite bad in June. When the rose bug appears, cover valuable plants with netting, or pick off rose bugs by hand and destroy. When cottony scales appear on shade trees like maples, spray with kerosene emulsion. If possible, put up suitable bathing and drinking places for birds near their nesting and feeding grounds. If a crop of clover seed is desired, cut the first crop soon after the middle of June to destroy the seed midge and depend on the second, or fall crop, for seed; or pasture the clover until the middle of June, then remove cattle and allow to grow up for autumn seed crop. Begin the use of pyrethrum and flour for cabbage worms early in the month. Destroy or remove all breeding places for mosquitoes that are to be found on the premises. Give the same attention to all possible breeding places for the house fly and restrict its multiplication as much as possible. In sections infested with grapeberry moth, spray with arsenate of lead just before the blossoms open and a second time just after the petals of the blossoms fall. This second spraying may fall in early July, depending on the season. Cultivate vineyard thoroughly in late June to break pupal cells of grape root-worm. The sprayings recommended for berry moth will kill the beetles of the root-worm. Spray potato vines with arsenate of lead to destroy Colorado potato beetle, flea-beetles and other leaf-feeders. Keep up the lookout for grasshoppers. Fruit trees subject to attack from borers should be whitewashed or sprayed with a carbolized soap mixture. Keep a watch for the Buffalo carpet beetle and similar household insects; also make examination for granary "weevils" and fumigate with bisulphide of carbon if infested.

July—Fight same garden insects as in June. Continue measures against grasshoppers, houseflies and mosquitoes. A third spraying with poison for grapeberry moth should be given when the berries are about the size of grape seeds. If army worms appear in excessive numbers plow around the infested area at once, turning the dirt toward the worms so that they will be compelled to climb the steep bank of the furrow to escape. Dig holes at intervals in the furrow into which the worms will fall and here they can be destroyed by being crushed, or sprayed with kerosene. Spraying a strip of the crop with poison in advance of the worms is also recommended. During the latter part of the month spray for the second brood of coddling worms on apple. Protect peach trees from borer attack by banking trunks with earth or by wrapping them with paper or some similar shield. Repeat treatment of June to prevent borers in different kinds of fruit trees. Continue examination for household and granary insects. If chinch bugs are abundant in grain fields at time of harvest, plow between them and corn fields to prevent migration to corn.

August—Continue warfare on garden and truck insects. Burn over wheat and rye stubble fields to destroy Hessian fly pupæ, and immature forms of jointworm, straw-worm, etc. Complete the destruction of foregoing wheat insects by plowing under old fields, thus burying them, and also midge or "red weevil," so deep they cannot emerge. Keep on fighting houseflies and mosquitoes.

SEPTEMBER—Refrain from sowing wheat until the latter third of September in order to avoid Hessian fly injury. Repeat earlier treatments to prevent injury to trees by borers. Early in September apply same treatment to locust trees to protect from locust borer. Houseflies, mosquitoes and other household insects still need attention.

OCTOBER AND NOVEMBER—Destroy potato vines, cucurbit vines, etc., as soon as crop is harvested to destroy borers and similar pests in vines. If the remains of all garden stuff and truck crops are carefully destroyed in autumn, many plant-lice and hibernating insects will be destroyed also. Fall plowing will break up the hibernating cells of many wire-worm beetles and pupæ, destroy the pupæ of cut-worms, kill many white grubs, turn to the surface the eggs of plant lice stowed away in ants' nests, etc.

Mr. E. H. Cushman, Lucas: I would like to ask the professor just what he meant by the "Cigarette" beetle, whether it has hard wing covers, and what kind of a spray is used to do away with it?

Professor Gossard: The cigarette beetle is a small beetle, works in dry tobacco and has hard wing coverings.

Mr. G. C. Eversole, Pickaway: Pickaway county, and especially Bloomville, has furnished perhaps a majority of the melons for the city of Columbus for fifteen or twenty years, and we have had considerable trouble down there in the melon business with the striped back melon bug. The speaker did make a little statement in regard to the treatment for them, but I do not understand what it is. I would like to have him give me some information in this matter. They are the most destructive pests we have, and after he is through, if the chairman will give me permission, I would like to make a few remarks.

Professor Gossard: I presume the beetle to which you refer is the common striped cucumber beetle. I use in my own garden tobacco dust quite freely around the vine. If I do not have it convenient, I take air-slaked lime, moisten it with a little kerosene and scatter it around the vines. The odor of the kerosene is very offensive and the result is usually fairly satisfactory. While the vines here and there may be killed, I usually get a crop. Of course mechanical devices or protection are the surest thing. If I were treating very large areas I think I would rely upon lime with kerosene.

Mr. G. C. Eversole, Pickaway: Now, I have been raising melons for twenty years, and I have furnished the city here with more melons than all the others together, and I have had a desperate fight in order to do that. I have tried his remedy, in using sod, in planting melons early in the sod, and after we have a few cold nights and cold rains they are not worth anything. They will be dwarfed usually if they are planted early. I have planted them the first warm spell in April and planted them the

10th of June, and those planted in June were better than those planted in April. I have tried the remedies the Professor recommends. I have tried air-slaked lime on melons and I have tried the tobacco dust, and they take the vines anyhow. I got so thoroughly aggravated this year that I said I would not use a thing. I have a remedy. (Hesitating.) I don't like to tell it very well, and I certainly had the greatest success this year of my life in raising melons. (Further hesitation.)

The President: Either tell it or not tell it. (Laughter.)

Mr. Eversole: Well, now, it is something perhaps you have tested. It is no new thing. Commence planting the first warm spell. Plant hill No. 1. First you have got to have lots of seed, and I have a two bushel sack full of it today and I only expect to plant twenty acres. Plant hill No. 1. About five days later plant No. 2. Now, you can look for the melon bugs as regularly as the sun comes up in the east. When the first hill comes up, why in four or five days you will have another coming up. Well, if this new fresh plant comes puffing up, they will leave the old plant and jump on to the new ones. About five days more plant another hill on the other side. They will go from one plant to another. Keep that up till the 10th of June, and the first thing you know you have a crop of melons strung here on the land, and you can pick melons the first of July and can pick melons in August, and clear along the line, always ready for market. They are like "Tom's people," they are always looking for a "snap," and whenever they can find a young tender plant they are going to leave the old one and jump on to it.

Mr. Clark, Allen: I would say that as far as the originality of the gentleman is concerned, he is not quite so original in his plan of melon raising as he might think. Our friend S. A. Durbroc, over in Auglaize county, has used that process for a number of years, and he is very successful. It is one of the best he has ever come across. Plant at various times, and the insects will invariably hunt these new shoots. So the originality of this plan does not exactly belong to this gentleman. (Laughter.)

Question: The speaker mentioned the white grub as one of the destructive insects to the farmer. We have heard some talk of late that had we used an acid phosphate fertilizer in or about the hill of corn that that is destructive to the grub worm. Now, I would like to know if there is anything in it?

Professor Gossard: There is no doubt about it that if you were to use enough acid phosphate you could kill the grub, but it would break any farmer up to use enough to kill all of them in the cornfield. I do not believe that the benefits would justify the use of this remedy. About the best thing is fall plowing, or better yet, turn the pigs in and let them go for the grubs.

Mr. Eversole: I would like to have the speaker tell me what kind of soil he would plant melons in, and his opinion as to fertilizer and manure, and just what he would prefer. I want to hear from him on that subject.

Professor Gossard: I have not been in the state of Ohio very long. In fact, I do not know as much about Ohio soils as many who are here, and some of our other men could answer that question much better than I. Possibly, Mr. Ballou can answer it for you. I think we have done very little in trying to raise melons on the Experiment Station Farm.

Mr. J. P. Hine, Erie: In regard to the white grub. If the farmers would keep the hunters off their farms and not let them kill the skunks or polecats they would not be bothered with the white grub. (Applause.)

Question: Is it practicable to follow fall plowing on level corn land where there is practically no great amount of wash?

The President: Will Mr. C. G. Williams answer that question? Is it practicable to plow corn land in the fall where the land is level?

Mr. Williams: I would not want to undertake to answer that question for every man. If a man is pestered with the white grub in his soil, it might be advantageous to do it. As a general rule, however, I would prefer to have the soil covered. If I had clover sod, I would prefer to let it remain growing until spring. I am not discussing the matter of fighting insects.

Mr. Solomon Johnson, Stryker, Williams: Mr. Chairman, Williams county is very level. Some of the best farmers plow their corn ground in the fall, if it is a stiff, heavy sod. It makes it weedy I know. I have now more than thirty acres plowed, but I read in the Ohio farmers' papers and lectures that we ought to have the soil covered. Now, I never dispute anything that I do not know anything about, and so I keep out of a good deal of trouble. Perhaps the soil better be covered, but the benefits arising from fall plowing to kill insects and the like, I thought would overcome the advantage of a covered soil. Therefore I like fall plowing.

The President: The next number upon the program will be an address by Professor Thomas Shaw of St. Paul, Minnesota, on

"FEEDING FARM ANIMALS."

The successful feeding of farm animals is never the result of accident. It is the outcome of giving food and care more or less in conformity with the leading principles that govern such work. The measure of the success will be the measure of the fidelity with which these principles have been observed. True, the individual who thus succeeds may not be able to formulate those principles, but he unconsciously follows them all the same, or success would not crown his efforts. In the absence of formulated principles the individual must learn from the experience of some one else; in their presence he has a safe guide, in the absence of experience, although experience is necessary to enable him to apply them in the most successful manner.

LEADING PRINCIPLES.

The following are chief among the leading principles that govern the successful rearing and feeding of farm animals:

First—They must possess quality before they can be fed and reared with marked success.

Second—More food is required to make a given gain as the birth period is receded from.

Third—When periods of stagnation occur before maturity, the food of maintenance, fed during such periods, brings little or no return.

Fourth—When development is seriously arrested at any period before its completion, the feeding quality of the animal is affected adversely.

Fifth—When development is unduly forced by stimulating foods while the animal is young, its feeding qualities are injured.

Sixth—In the fattening process, when animals are so ripened that they cease to make good gains, further feeding can only be done at a loss.

Seventh—In selecting a ration for feeding, a due regard must be had to the chemical constituents of the food or foods which compose it.

Eighth—In nearly all instances a mixed diet is superior to one composed of any one food.

Ninth—In fattening animals the profit or loss resulting is largely influenced by the cost of the animals up to the time when the fattening begins.

Tenth—Pregnant animals should be maintained in a good condition of flesh.

Eleventh—When animals are exposed to temperatures below what is normal, additional food proportioned to the degree of the exposure will be necessary to restore animal heat.

Twelfth—Discomfort from any source arrests development and consequently produces loss in proportion to the degree and continuity of the same.

QUALITY IN FARM ANIMALS.

Quality when applied to farm animals is comprehensive or otherwise as the term is defined. More commonly it has reference to handling the skin and flesh, especially of cattle. When thus applied it has reference mainly to the sensation conveyed to the mind through the sense of touch. Its presence is usually sought by touching certain portions of the body with the finger tips to ascertain the depth of the covering, and by grasping the skin over the ribs within the hand to ascertain its looseness and flexibility. A good depth of elastic flesh relatively over the portions that are more difficult to cover, as the loin and shoulder blade, and loose, pliant skin are indicative of good digestive qualities, as they are the outcome of these.

Here, however, quality is used in a wider sense, that is to say, in the sense of capacity for well doing as indicated by the breeding and form, in addition to the handling. The breeding of animals has, of course, an important influence on their feeding qualities. As a rule, well chosen, pure bred animals of the beef breeds will make greater gains and more rapid gains from a given amount of food than will common stocks of mixed and inferior breeding, or than animals of the various dairy breeds. This statement has been denied, and some of the experiments conducted by the experiment stations would seem to favor such denial. Other experiments tend to sustain the opposite view. Of the correctness of the stand taken, however, I have not the shadow of a doubt. Good digestive and assimilative qualities are as much a matter of transmission as qualities or properties that relate to form.

The possession of correct form is, of course, immensely important. The precise nature of such form will be largely dependent on the precise object for which the animals are reared. In meat-making animals it usually means much relative width and depth, and fore and hind quarters well balanced as to weight. In milk-giving animals it means much capacity of barrel and various other accomplishments which cannot be mentioned here.

The difference in capacity of animals similar in age, breeding and form, to digest and assimilate food, is very great. It varies in some instances between 50 and 100%. One steer being fattened will sometimes gain but little more than one pound a day, whereas another steer will gain two pounds per day on practically the same food. But the difference in returns in meat-making animals as the result of form is no less great. One animal possessed of correct form will sell for five cents per pound alive, when another fed for as long a period will only sell for three cents, the difference being based entirely, or almost entirely, on form.

COST INCREASES WITH ADVANCE IN AGE.

As a rule, the amount of food required to make a pound of gain in meat-making animals increases as the birth period is receded from, and increase in weight decreases continuously.

It is easily possible to make a cattle beast of beef inheritance gain two pounds daily during the first year, not including birth weight, even though reared essentially on skim-milk and adjuncts during the milk period. The same animal is not likely to increase in weight the second year more rapidly than one and one-half pounds per day, or the third year more rapidly than one and one-fourth pounds per day, notwithstanding that more food was consumed the second year than the first, and the third year than the second. The explanation is found in the greater activity of the digestive organs near the birth period and to the increase in the cost of the food of maintenance as the birth period is receded from. Young swine furnish an exception to the rule regarding increase in weight but not in regard to increase in the food required to make weight. Young swine while nursing cannot be made to gain so rapidly as at a later period.

The economy of pushing our meat-making animals rapidly from birth until ready for the block will be readily apparent. The importance of so doing increases with relative increase in the cost of food. It may be different where at certain seasons of the year, cheap and coarse foods are abundant on the farm, and it is desired to utilize them to the utmost, or where pastures are partly or wholly free as on the range. It may be that a steer grown on the range will bring greatest profit sold at four years. It may be also that a steer grown on farms in the Mississippi basin, where, oftentimes, much fodder is wasted, will bring greatest profit at three years, but in the eastern and New England states, greater profits will certainly come from selling steers finished at an age not exceeding two years, where food is relatively dear.

CESSATION IN GROWTH.

The truth must be self-evident, that if at any time before development is completed, growth ceases in whole or in part, the cost of the food of maintenance is proportionately increased. If cessation in growth is complete, there is no return for the food of maintenance during its continuance, unless it be under conditions where animals are thus carried on until they can be maintained on cheaper foods. For instance, it may pay a ranchman to carry an animal through the winter without gain in order to bring it to that season when it will graze on pastures that cost but little or are entirely free. But it will not pay the eastern farmer thus to carry a young animal through the winter, since pastures on eastern farms are valuable as well as coarse foods.

The farmer who puts a young animal in winter quarters at the advent of winter, and who turns the same out to graze say five months hence, without any advance in weight, has virtually lost the food fed during those five months. The only return he has is a poor grade of fertilizer, the value of which will be largely offset by the labor expended in caring for the animal and the cost of providing suitable shelter. In growing meat-making animals, therefore, on eastern farms, the wisdom of keeping the animals growing all the while and with prudent haste, and of selling them at a relatively early age will be abundantly apparent.

ARRESTED DEVELOPMENT.

Should development be arrested in whole or in part at any time before it is completed, the capacity for future development is weakened and in proportion to the degree to which development was hindered.

When the hindrance to development is slight and covers but a short period, the injury resulting may be so slight as to be imperceptible. Notwithstanding, time is lost in completing development and there is also a proportionate loss in the food of maintenance. If the arrested development has been prolonged and severe, in addition to a proportionate delay in completed development and a proportionate loss in the food of maintenance, there will also be a proportionate loss in the capacity for future development. Feed the animal ever so well subsequently, and it will never wholly regain what has been lost. In other words, the same profit can never again be made from growing the animal that would otherwise have been possible. If the arrested development has been exceedingly severe, then the loss of capacity to develop may be so great as to preclude the possibility of making any profit from rearing the animal under any conditions howsoever favorable. It should also be remembered that the loss of capacity for future development is greatest when arrested development occurs near the birth period, and gradually grows less as it is receded from. The importance, therefore, of keeping animals pushing on with a prudential haste from the day of birth until development is completed, or until they are ready for the block, cannot be easily overestimated.

Arrested development may arise, of course, from various sources. It may come from insufficient or unsuitable food, or food both insufficient and unsuitable, also from food excessive in supply and nutrition, or from under exposure, or from several of these and it may be other causes combined. It would be too much to claim that the source of arrested development did not influence the loss of capacity referred to, but it would not be claimnig too much to say, that whatsoever the source, the loss in capacity to develop will be serious whenever prolonged periods of stagnation occur in the early growth of the animal. The unsatisfactory development subsequently of the ill-cared-for whey fed calf furnishes an illustration.

OVERFEEDING DURING GROWTH.

When food is feed exactly adapted to the needs of a young and growing animal, it would not be easily possible to injure the animal by overfeeding, but it would, of course, be easily possible to waste food through careless feeding. Exact adaptation has reference to feeding foods in due balance both with regard to chemical constituents and proper adjustment between the concentrated food fed and the roughage. With some foods adaptation is so perfect that animals feeding upon them will not injure themselves and will at the same time make satisfactory development in the line sought. This is true of rich pastures grazed in summer and of clover and alfalfa hay fed in winter. Other foods fed at will may be seriously harmful, in fact positively dangerous, while at the same time they are helpful when fed with due regulation. For instance, one feed of rye meal consumed at will may destroy a young animal, while a suitable amount fed from day to day with other food adjuncts would be decidedly helpful.

Injury from excessive feeding of meal to young animals most commonly occurs when they are less than one year old. During the milk period, young calves will seldom, if indeed ever, injure themselves by feeding ever so freely on a meal ration composed of ground oats and wheat bran fed in equal parts by weight, nor are they likely to injure themselves subsequently on such food with suitable fodder adjuncts. The reference here is to animals grown for meat. But a time comes when so much of the meal would be consumed that it is unprofitable to feed it longer at will. But suppose instead of the meal as mentioned, corn was used, or rye, or a mixture of these, a time would come when development would be checked, if not positively arrested. The too concentrated character of the food in conjunction with the excessive amount fed has overtaxed the digestive and assimilative organs to the extent of weakening them, it may be permanently.

When the animals are being grown for milk production the properties concerned in future milk production may be weakened by such feeding before the point has been reached when the digestive organs become impaired. The injury may come from the influence which the food has exercised on assimilation. It has strengthened the digestive habit of utilizing the food in making fat and the influence in this direction is felt even after the female has begun to produce milk. It is possible, however, if not indeed probable, that this thought has been carried too far in the rearing of dairy heifers.

When animals are so forced during the finishing period by feeding so much strong meal that they get off their feed, that is, lose appetite in whole or in part, the danger point has been reached. The digestion has been more or less impaired. Cessation in feeding the meal or the grain that has caused the trouble is the remedy. In many instances, however, subsequent gains will be less than they would have been had the digestion not been thus impaired.

It is also true that dairy cows under high pressure feeding may have the milk-giving function weakened, in the absence of any symptom of indigestion, from sheer overwork. The machinery of digestion has been driven at speed so high and so continuous, that the wear has been excessive, although there has been no breaking down in any part thereof. The limit of the period of high usefulness in a dairy cow may thus be easily and materially shortened.

SELL ANIMALS WHEN RIPE.

Animals that are being fed for the block are ripe when, under normal conditions of feeding, they cease to make material gains. If kept longer the larger portion of the food fed is given at a loss. The loss may soon become serious, for, under such conditions, they may continue to consume large quantities of food. Such ripeness is indicated by a firmness of the flesh under gentle pressure or by marked falling off in the gains under suitable conditions of feeding. In an experiment conducted under my personal supervision, pork during the fattening period was made up to a certain point at a cost of approximately four cents per pound, whereas during subsequent weeks the cost was approximately ten dollars per one hundred pounds, the food fed being the same in kind. The importance of disposing of animals promptly when finished is thus apparent.

The mistake, however, is far more frequently made of selling animals unfinished. Probably 90% of all the cattle sold reach the block under rather than overfinished. This more than anything else, probably, is accountable for the too common belief that there is no money in fattening cattle. Sometimes cattle are sold half finished because the price of food has become unduly high. At other times, because suitable food supplies cannot be obtained, but more frequently, perhaps, because many do not properly understand what good finish in cattle means.

THE CHEMICAL CONSTITUENTS OF FOODS.

When foods are being fed a due regard must be had to their chemical constituents, which means that a proper relation must obtain between the amount of protein and carbo-hydrates fed under normal conditions of feeding to insure the most satisfactory results. This relation will vary with the animals fed and the objects sought from feeding them. These varieties cannot be discussed, they are so many. There must also be a certain relation between the amount of concentrates and roughage to bring highest profits. But since this relation is a shifting quantity and is to some extent affected by food values, it also will not be discussed further.

I call attention to the important fact here, that the real value of a food factor may be more or less in practical feeding than chemistry would assign to it on the basis of food constituents. Two factors at least must be considered in judging of the value of a food in addition to the chemical constituents which it contains. The first is palatability, and the second is the influence exerted on the digestion. Thus, rye straw because of its low palatability has a lower food value than chemistry would assign to it. Animals will not eat it freely unless impelled to do so by hunger. On the other hand, field roots have a higher food value because they favorably influence the digestion.

The further fact is also significant, that in some instances, foods may be fed at a greater profit when fed out of balance rather than in balance. This is possible when one food is so much cheaper than another opposite in character, that it may, as it were, be fed in excess. I have fattened lambs at greater profit on a ration not in balance than on one in balance, because of the relative cheapness of corn, a leading factor in the former. In alfalfa areas it also sometimes pays better to feed protein in some excess than to incur the cost of securing other foods to balance the ration.

A MIXED DIET SUPERIOR.

In feeding animals for a prolonged period, a mixed diet is superior to a ration composed of only one or two food factors. This may to some extent be owing to some chemical action which the foods exercise one upon the other in the process of digestion. It is probable, however, that it is due more to the influence exercised by the combined foods on the appetite and to the more even balance that is thus likely to be secured in the mixed diet. Animals, like individuals in the human family, tire of one kind of food when fed continuously upon it. To this there may be some few exceptions. They tire more quickly of some food factors than others. Swine, for instance, will consume corn for a longer period with a relish than barley or rye, and horses will consume oats with avidity for a longer period than any other kind of grain.

These influences are more noticeable when the feeding is forced, as when animals are ripening for the block. The appetite under such feeding slackens, hence any judicious change of diet that will lead them to consume more food will usually be found helpful.

INFLUENCES WHICH AFFECT PROFITS.

Among the many influences which affect the profits that result from feeding, but three will be discussed here, viz: The influence of food values, of cost before the fattening period, and of the price received for the animals when sold.

The influence of food values is so evident that it is scarcely necessary to discuss it. Other things being equal, the difference in returns from feeding corn at twenty cents per bushel and the same at forty cents will be at once apparent. Some seasons the price of foods varies much. One kind of grain may be dear and another kind cheap. All kinds of grain may be relatively dear, while fodders may be cheap. Under such conditions, the aim, of course, should be to feed the cheaper foods as far as may be judicious, in the one instance, and to utilize fodders as far as may be practicable in the other. Sometimes, however, it may be advantageous to feed more or less of the dear food, because of the advantage which results from feeding foods in balance.

Where the conditions are normal it follows that, as a rule, foods may be more cheaply grown by the farmer than purchased, but it may, notwithstanding, be necessary to purchase more or less of one or more food factors not readily procurable from home sources in sufficient quantities. The grower may thus find it profitable to purchase wheat middlings freely, notwithstanding, that he may be a large grower of corn. It is also generally true that fodders are relatively cheaper than grains, hence the larger the amount of these that may be judiciously fed, the larger will be the profits. In this fact is found the justification for the free use of corn ensilage in feeding live stock and in chaffing and mixing dry fodders with meal, in order to increase the consumption of the former.

As a rule, a pound of increase made during the finishing period costs more than the food used in making it. To this there are some exceptions, as when meat brings a good price while the foods used in making it are cheap. If, therefore, profit is to be made on home-raised animals fattened on the farm, it must come from the two following sources, viz., the growing of the animals on cheap foods up to the time when the fattening begins, and the increase in value on every pound of live weight possessed by the animal at that time resulting from the fattening process. The profit of the feeder who buys the animals which he feeds can only come, of course, from the last named source.

Suppose, for instance, that a feeder purchases a steer at four cents a pound live weight, feeds him for six months and sells him for five cents a pound. Suppose the weight when purchased was twelve hundred pounds and when sold fifteen hundred pounds, the gain being three hundred pounds. Now, suppose the three hundred pounds cost fifteen dollars to make it, then no profit has been made on the increase in weight. The profit comes from the advance of one cent per pound in the value of each of the twelve hundred pounds of weight possessed by the animal when the feeding began, that is to say, it would be twelve dollars, leaving the value of the manure to offset the labor and interest on the investment.

The close relation, therefore, between buying and selling prices in animals that have been fattened is very apparent. The difference between the buying and selling price, as a rule, should not be less than one cent per pound, if any considerable profit is to come to the feeder. Before substantial profits can be assured, this difference should be from one and one-fourth to one and one-half cents per pound.

At first thought it may be imagined that, since profit in feeding comes from the increase in value in the weight possessed by the animal at the time of purchase, the more the animal weighs at that time the greater will be the profit resulting from fattening. In many instances that does not follow, since young animals considerably below maturity make greatest increase for the food fed to them.

GOOD CONDITION AND PREGNANCY.

The fallacy so extensively believed that pregnant animals should be kept in moderately low flesh has done much harm. It is, of course, quite possible to keep a pregnant dam in a condition of flesh too high for the well being of the progeny, but the instances in which this occurs are few indeed compared with those in which the opposite is true.

The pregnant animal while in this condition must maintain herself and also nourish the fœtus which she carries. The double duty thus present calls for liberal feeding. Where this is not forthcoming, the fœtus is sustained in part at least at the expense of a lowered condition of flesh in the animal. This, of course, reduces the ability of the dam to properly nourish the offspring after birth.

After the young animal has been born, the drain upon the dam for its sustenance is usually heavy. To meet this need, the tax upon the system of the dam usually lowers her flesh though liberally fed. It follows therefore that a dam in good condition when her offspring are born can nourish them better than one in low condition. The former has stored up flesh previously which is now drawn upon to feed the offspring.

COMFORTABLE HOUSING.

Animals that are being fattened must be protected from excessive cold, or the cost of food in proportion to the gains made will be materially increased. It is probable, nevertheless, that more loss results from keeping animals too warm and closely confined while being fattened than from exposing them unduly to cold. Recent experiments have shown that animals fattened in sheds with liberty to move about in the same, and also in yards adjacent, have brought higher profit than those tied in the stall. The former consumed more food, but they also made greater gains.

The degree of the exposure or of the protection that should be given varies with the class of the animal. Sheep, for instance, will bear more cold than cattle and cattle than swine, but it is imperative that all animals that are being fattened shall be protected from storms. Food is expensive heating material.

CONDITIONS OF COMFORT.

The feeder who attains to marked success in this line of work must study carefully the needs of the animals which he feeds. If the conditions prove too warm through change of weather, more ventilation should be promptly given. If they prove too cold, additional attention should be promptly given. If an animal gets off feed, immediate attention must be given to its needs. The more completely comfortable that animals can be kept, the better will they flourish, and it will be the constant endeavor of the faithful stockman to make them comfortable. While engaged in such work, he can never come down from the watch tower of vigilance, and his reward will be proportioned to the fidelity and intelligence which he has shown in his work.

Mr. F. G. Pontius, Franklin: I would like to ask the Professor if he takes a Short Horn steer that weighs say thirteen hundred pounds and feeds him one hundred days on dry feed, not on blue grass, and corn worth forty cents a bushel, how much does he gain? Say he pays four cents for his steer, what does he have to get for his steer to get forty cents for his corn?

Professor Shaw: I would say, gentleman, that I would not be the owner of that steer. But let me say this. There is going to be a turning over in western feeding. I do not know about Ohio feeding. I suppose you do it just right here. I know that in the West the farmer who is feeding a steer on corn and he weighs from twelve hundred to fifteen hundred pounds, will tell you to feed that steer from twenty-five to thirty pounds of corn per day. Of course, the pigs feed from the droppings. If a farmer could get corn for from eleven to fifteen cents a bushel, the price it brought when I came to the United States, he could do that thing, but if he pays forty or fifty cents a bushel for his corn he cannot do it. Men who are doing that sort of thing will have to stop it. I have fed steers over a period of six months, eleven pounds per day, thirteen pounds per day, and fifteen pounds per day, and I got about the same gains from the eleven pounds per day that I did from the fifteen pounds per day, and lo! and behold! these men are feeding from twenty-five to thirty pounds of a more concentrated ration to their steers than I fed. Now, allowing five pounds for the pigs, it still leaves twenty to twenty-five pounds.

Mr. Pontius, Franklin: That does not answer the question. I have twenty-three head and am feeding forty-cent corn. Now I would like to have you give me some idea what price I will have to ask for them to get forty cents for my corn?

Professor Shaw: What kind of feed have you beside the corn?

Mr. Pontius: We are feeding corn right out of the shock every day. We have two lots and racks, and we feed in the morning in one lot and put the feed in the next lot for night, and in the evening open the gate and let them walk in.

Professor Shaw: What other kind of feed are you feeding?

Mr. Pontius: We are feeding just what I am telling you. No hay, nothing of the kind. Glad to get that to them. We cannot get the corn husked.

Professor Shaw: I certainly think it would pay you to buy some Minnesota oil cake to feed along with your corn. I suppose the freights are against you. That ration is entirely one-sided.

Mr. Pontius: I thought you were such a well-posted man you would know just exactly what I would have to ask in the spring.

Professor Shaw: Well, I might tell you what I would ask. I would ask the very top notch of what I expected to get. I could not promise you I would get it.

Mr. Pontius: Well when I am in the market I must take the market price. There is no use to ask two or three prices for anything.

Professor Shaw: I would suggest that you buy some feed, if you have to buy it, and feed it along with that.

Mr. Pontius: I have fed cattle all my life.

Mr. Moore, Clermont: With reference to those roots, what is the cost? With us we raise the Mangel Wurzels and they cost us nineteen cents per hundred pounds to raise them. I would like to know if it would pay to feed them at that price?

Professor Shaw: I think that is entirely too much for them. In my judgment they can be raised at four cents for fifty pounds, eight cents for two bushels. I am prepared to say that the cost will average about fifty per cent. more than the cost of growing corn. Now, I am not here to advocate that you farmers put in a great many acres of roots. That is not what I said. The Canadian farmer is doing that. I do not believe it will pay you to grow roots generally. It is for your young stock, your calves and your pigs and perhaps for your lambs, and I am satisfied it will pay you to grow an acre or two or three. You can do it without great labor.

Dr. G. A. Harmon, Fairfield: Last winter a young man on my farm weighed a bunch of steers, a year ago last fall, on the first day of October, we put them on the scales and weighed them, and they weighed less than one thousand pounds. We fed them until the 29th day of January, when they went away. We expected to feed one hundred days, but we could not get them off. They were medium quality. We fed those steers, weighed them in and counted them up at four cents a pound and we sold them at four dollars and sixty cents, and when we had counted the corn that we had fed them and the gain from the hogs that followed them, we got sixty-five cents a bushel for our corn.

Mr. Eversole: Now this is a great corn growing country, and the farmers' and agricultural papers over the country and the Professor, have advised the farmers to buy—what? Stock foods of all kinds.

No! No! No! (from everybody) No! No!

Mr. Eversole: I need oil meal, and bran, and all such stuff as that. Now, don't you think it would be better for farmers in this country to use and feed their own feed and all the roughages they have, feed it on the farm and thereby make lots of manure that they could not make otherwise? And don't you think that would pay a good deal better than this feed stuff, from the fact we have our own, than to feed the stuff from the Minneapolis mills? It saves the freight. We can feed our own feed and not have to pay a dollar for this feed. What would we do with it if we did not feed it? A man feeds a bunch of cattle and the hogs follow them and gather up the corn, and the farmer might not make a dollar on feeding the cattle, but he would make it on the hogs and save the manure. Isn't that better than to buy the stuff you speak of?

Professor Shaw: I would say that my creed in regard to food stuff on the farm is simple: Feed everything you grow, unless the market price is such as to justify your selling some kinds of feed which you can buy in other forms to better advantage. I am satisfied that a pound of fertilizer in the form of farm manure is worth more than a pound of fertilizer any agent can sell you. Now, I am not talking against commercial fertilizers. I am not talking against the men who sell them. They ought to be and will be used more than they have ever been used. But I am anxious to stop as far as I can, and I am trying to do something to stop it, and I hope every farmer in the United States will help me, to stop depleting the soil. It is enough to make a man sad to think of the way that our farmers in Minnesota and the Northwestern states are robbing their land. They are not farming it. They are practicing a system of land robbery in growing grain and shipping it across the Atlantic to be fed to live stock to come into competition with live stock raised in the United States. If you can buy this grain and feed it and even get a fertilizer out of it, I believe you are making money by the transaction.

The President: The time has now expired for the discussion of this subject.

Here the institute was entertained by music by the Williamson Sisters' Quartet.

Mr. George E. Scott: Mr. Chairman, I think we ought to give some expression of our appreciation of the efforts of Professor Shaw and Mr. Cook who have been with us the past two days, and I therefore move that we extend to these two gentlemen a vote of thanks, as an evidence of that appreciation.

Motion prevailed unanimously.

The President: We were next to have an address on "Farm Forestry," by Hon. George B. Horton, of Michigan, but in his absence, Professor W. J. Green, of the Ohio Agricultural Experiment Station will present the subject. Professor Green is at liberty to handle the topic as he sees fit. Professor Green needs no introduction to an Ohio audience.

"FARM FORESTRY."

Mr. Chairman and Members of the Institute: Forestry to my mind stands on precisely the same basis as other farm crops. If it will not pay, it will not be practiced. I shall undertake to show you how, in some ways, it can be made to pay. And, for instance, to make the thing a little more plain I will divide it into two parts: First, what trees can we plant that will yield a profit? And, second, the care of the farm wood-lot.

Now, either one of these topics is more than enough to occupy the time that we have this afternoon. Consequently I shall try to be very brief. First, with regard to planting. What kind of trees are there that we can plant, and for what purposes? Everyone has had the experience of late, I think, of being obliged to pay high prices for post timber, and this, as I understand, has been the exciting cause of the present interest in forestry. Farmers found that they did not have sufficient post timber and they had to pay high prices to get it. Then the question arose, what trees they should plant and how should they plant them? This, however, is only a small part of forestry, and some people will go so far as to say that it is not forestry at all. And yet it is, in one sense, at least. There are some kinds of trees that you can grow with profit. Last year Mr. Waid made a tour of part of the state and inspected about twenty groves of catalpa and locust trees. About three-fourths of these groves were of catalpa, and he found in looking the matter over carefully, counting the number of trees and estimating the number of posts, and then setting the very low price of ten cents for first-class posts and six for second-class, he arrived at the conclusion that growing catalpa and locust trees could be made to pay in this state.

The lowest value per acre set upon any catalpa grove found was one hundred and forty-six dollars and the highest was three hundred and twenty-six dollars, or an average of two hundred and thirty-eight dollars per acre for the timber growing thereon. This gives per year, since the time the groves were planted five dollars and eighty-four cents for the lowest estimate and fourteen dollars for the highest estimate, or an average of ten dollars and thirty cents per acre for the post timber found growing in these groves.

Now, if there is no profit in this, then I ask what farm crop can you grow which will be better? I believe that you cannot grow any farm crop by putting the same amount of labor into it, any better than the post crop. This does not take into consideration the value of the crop for other purposes. The age of these groves was from twenty-one to twenty-five years. Now, there are several things about these groves we do not know. In the first place we cannot say whether there would have been greater profit if the trees had been harvested at an earlier period, or whether it would pay to grow them longer. The wood in catalpa or locust can be grown so that the harvest can commence from eight to twelve years, depending on the soil and care given. The locust groves vary a great deal in their profit. Some of them were worthless because of the borer. The best one found in the state exceeded catalpa. The best locust grove was found to be seventeen dollars and ninety-eight cents per year since it was planted, but it would fall below the average of the catalpa because of the borer. These groves were not planted or cared for as they should have been. The trees were too close together, as the trees on the outside of the groves were larger. They were not only put too close together to begin with, but too little or no thinning had been done. The inside trees were crowded for room and had almost ceased to develop in some cases. This, of course, cuts down the average very greatly. No cultivation was given in most of the groves, except one or two years, for the simple reason, if for no other, that the trees were planted so near together that cultivation could not be carried on for any length of time. Probably in most cases the owners didn't think it worth while to cultivate. Then, no pruning was done. Many of the trees were crooked, and there were various causes that would cut down the value very greatly. So that considering the fact that improper care was given to these groves, it makes the estimate of ten dollars and thirty cents per acre appear in a much better light than it would if proper care had been given.

Now, just a few words in regard to what care a grove ought to have. In the first place we do not know exactly what is the best treatment to give. We know that trees will grow better if cultivated than if not cultivated. We know they do not do well in sod. They ought not to be crowded so closely together that each tree cannot have a fair chance, but we do not know exactly how much space each tree ought to have. From the indications we have, it appears to us that each tree ought not to have less than fifty square feet, or more than that, from the very beginning, and when the growth begins to slacken, when the outside trees are growing much faster than the inside, then it is time to begin to thin out the trees; but the trees ought to be planted so that when this time of thinning comes we can sell them and make use of them. We cannot say just how far apart we should plant these trees. We want to begin the harvest in eight or ten years as all the trees will be practically the same size. As near as we can judge, each tree ought to have from fifty to seventy-five square feet.

It has been the practice quite generally to plant the trees about equal distance apart each way, four by four or five by five feet, but we are pretty well convinced now, as a matter of convenience, and in order to keep up cultivation as long as possible, we should put the trees wider apart one way than the other; say give nine or ten feet between the rows, and put the trees nearer together in the row. Put the trees so far apart that the trees in one row will grow one way, and in the other row they will grow the other way. You must keep the trees about ten feet apart. That is far enough and then you can keep up the cultivation for at least three years, if it is possible.

With regard to which is the best kind, it depends upon the soil, and doubtless other matters also. The locust grows faster than the catalpa in the first year. I think that is generally true. It grows much faster the first year in poor soil, than the catalpa does, but the catalpa will overtake it later. The locust would be a very profitable tree to grow for posts if it were not affected by the borers, but it is a very uncertain tree to grow. If the tree should remain exempt from borers, then it would be a profitable tree to grow upon poor soil. The catalpa needs comparatively rich soil, and yet we find it does very well in some soils not quite so rich, soils that are classed as quite poor. The catalpa does not thrive at the experiment station as well as it does at many other places. We find on our test farm in Meigs county that the catalpas have grown at least one-half faster than at Wooster. So we do not know just exactly what kind of a soil is best. But in general, if one has fairly rich soil, it ought to be devoted to catalpa and poor soil to locust.

With regard to the farm wood-lot, there are some more difficult questions. I mean the wood-lot as it exists naturally, either before the timber has been cut, that is the original timber, or the second growth; taking either one of these as what we call the farm wood-lot, in distinction from cultivated trees. I say this offers some problems more difficult than the other. In the first place, we must take things as they are. We find all kinds of trees growing in the farm wood-lot. Many of them are of but little value; indeed the majority are of but little value and always will be. The trees are too thick or too thin. There must be planting or thinning done.

Taking all these, and other questions, into consideration, we cannot answer the question, how well the farm wood-lot can be made to pay. We must consider the fact that the wood-lot is on comparatively waste land—not much value—on which we could not grow other crops with profit. And then, too, the farm wood-lot adds value to the farm. These things must be taken into consideration.

Now, a few words with regard to the management of it. I will take some concrete examples. We have one at the experiment station. We have a small wood-lot there of about two acres. The timber was cut, I think, in 1892 or 1893. I do not know how heavy the original timber was, but all the good timber was taken off, and then there sprung up a thick growth of thin ash and some other kinds. On a part the growth was very thick, and on a part it was not very thick, and in this respect it is like many other wood-lots. In the fact that it is nearly all white ash it is unlike many others, because it is very unusual to find a second-growth timber of one kind, especially nearly all white ash. But we found that this ash was took thick. We found the growth in the interior part was not as rapid as it should be. We thinned out the inferior trees, aiming at all times to take out those that were crooked or inferior, or that for some reason would not be the best value. It had some pruning—not very much. Then on another part of this same wood-lot the trees are not as thick as they should be. We did not undertake to take up the trees out of the thick part and set them out in the other part. We believed it would pay better to put young trees in that. There are scattered trees in this part, and the sod has come in there, and the blackberry bushes have come in, and thus far we have done nothing with it, but the plan is not to go in there and plow, because you cannot unless you destroy many of the young trees in order to try to get rid of the blackberry bushes, because they are all over. But they help to hold the leaves and keep the ground from drying out. So we will keep them. Now, I believe that is a fundamental principle in planting young trees. If you have a young grove you wish to fill up, don't put in the same kind, put in another kind. We shall use nearly altogether catalpa. In some cases we shall use white ash.

Another thing needs to be done very badly, and that is we need to prevent the wind blowing through and taking off the leaves and drying out the soil. There must be a belt of evergreens on the west and south sides of that little grove, in order to prevent the bad effects of the winds. Consequently we expect to plant that little evergreen belt on the two sides and fill up with trees in the vacant spaces, giving each tree possibly fifty square feet.

Now, on our sub-station in Meigs county, we have a different condition, but it is a typical case. We have a field there of twenty-five or thirty acres of a good many hickory trees from ten to fifteen feet in height. The hickory at that size is valuable. It would not pay to plant them, but the trees are standing there. It would be a good deal of trouble to grub them out and get the field in condition for plowing, but the hickories are now in a condition ready to grow, and we have gone in there and where there was a space big enough to plow, we plowed it last fall to get ready for planting some other kinds of trees in there that grow faster than hickory; and in the swails we plant walnut. Now, it may be looking a good way ahead to plant walnut, but I know a man who planted some walnut trees twenty years ago, and the trees are now fifty feet high and one foot in diameter. I dug up a space in the sod about two feet across and planted two nuts in the middle of each space. The trees may not grow as fast at first, but they surely have as good opportunity as we can afford to give them, and I believe they will come on and make valuable timber in time. And we shall plant possibly white ash or catalpa in this open space and then we have got to put a wind-break around that. We have always got to look after that in the wood-lot. This is just the place where a great many fail in the care of the wood-lot. They think if they have kept the stock out they have done all that is necessary. I recollect very well the experience an old gentleman related to me some years ago, at a time when there was but little interest in forestry. There had been a good deal said about it, but no one was doing anything. The State Board of Agriculture offered a prize for the best essay on forestry, and he told me he sent in an essay and that he ought to have had the prize, because his method was so simple. "I told them they should grow the trees and keep out the stock." I believe that any man who keeps the live stock out of his wood-lot is about as far advanced in forestry as the man who plants natural apple trees and expects to get a profit from them. We have to put more or less work into the wood-lot if we expect to get a profit out of it. It pays better to put a little work in it than to let it take care of itself. Much of the ground would otherwise be unoccupied and much would be too thickly occupied, and we will not get anywhere near the maximum amount of trees. We must plant some and cut out some; and where the good ones are too thick, cut out some of them.

Mr. Chairman, I think I have talked as long as necessary on this subject to arouse a discussion.

Mr. E. B. Pierce, Summit: I would like to inquire of Professor Green if some undergrowth could not be put in there to protect the grove instead of evergreen. Would not red raspberries grow there and answer the purpose?

Professor Green: I am glad Mr. Pierce mentions that. I believe in planting a locust grove where we can plant blackberries; it is the best thing to do. I believe it is absolutely essential to have something in there, and I said that at the Experiment Station where the ground is covered with blackberries, we propose to leave them there. Everyone knows that the ground is always rich in a blackberry patch, simply because they hold the leaves. Red raspberries would be equally as good.

Mr. S. R. Moore, Muskingum: Mr. Chairman, I have had a little experience in planting some locusts, also catalpas, mingled with observations from some of my neighbors, and in an adjoining county I saw a grove of walnut trees planted about the length of time Professor Green spoke of, that were as fine looking walnut trees as one would wish to look at, about fifty feet high, eighteen inches to two feet in diameter. Now we have some catalpa, such as the *Specioso*—there are three or four varieties of the catalpa, but the *Specioso* is the only one that we recognize as fit for a timber plantation. Mr. Mangold in my county planted along the road side about eight or ten years ago two rows of catalpas that are now about thirty feet high and eight to twelve inches in diameter, ten feet apart standing in the sod without any cultivation. One of my friends, a neighbor, planted a small locust grove five years ago, and the trees are now about twenty to twenty-five feet high. Some of them were cut back, (others were not) and they have started a new growth. It is better to cut back the young seedling at the time of planting and plant tolerably close, and then we don't care wehther we take the brush off or what becomes of it. Leave the brush on the ground and it serves as a mulch and to catch the leaves, and the trees grow. It keeps up equal temperature better in the winter time when the ground is frozen and in the summer time when it is very dry. In the planting of locusts, the yellow locust or the black locust is the one to plant for timber, but not the honey locust. There are three kinds of catalpa. The *Specioso* is an upright, that grows in Indiana. It was brought from there about fifty years ago by a man in the timber belt, where they used it largely for many purposes, and the first trees planted in Muskingum county are very large, two feet in diameter.

Mr. H. N. Ensign, Greene: I would like to ask Professor Green a question. He says to plant the catalpa rows about ten feet apart. How far apart should they be planted in the row?

Professor Green: About five feet.

Mr. Ensign: Would you advise planting catalpa on some of our southern hills in Jackson and Vinton counties, where the locust naturally grows?

Professor Green: No, I would not plant large groves. I would advise trying it. It grows very well there in some places. In the main, I think they are altogether too poor for it.

Mr. Ensign: Another question is this: Where can we get this *Specioso* catalpa plant and get it true to name?

Professor Green: You can not tell from the sprouts of young trees. You can tell from the seed.

Mr. U. T. Cox, Lawrence: Down there where Professor Green speaks of the locust growing on this land there are acres of them growing wild. The insects are getting down there and are injurying the trees to some extent. I guess they call it a *Locust leaf miner.* They take off every leaf.

Mr. L. B. Pierce: That is the wrong part of Ohio. Mr. President, it seems to me there is one point that should be emphasized in planting trees, and that is, whether the young growth, after it is planted, is going to be good for anything, unless we are going to plant on a very large scale and plant several varieties. If we plant such varieties as black walnut we cannot use these thinnings for any practical purposes. They have to grow through a lifetime of two generations before they will be of any use; but, if we plant a chestnut or a white ash or a catalpa, we can use the poles almost from the start; but if we plant some tree like the hardwood black walnut and the tulip that are real saw log or timber trees, we do not get anything except firewood from the thinnings.

Another thing I would like to call Mr. Green's attention to and that is whether some trees do not do better all together in an aggregation; for example, the black walnuts planted in a grove, than they do separately? There is a tree in front of my house, a black walnut, that I helped to plant when I was not more than seven or eight years old. It was right by the side of a log shoemaker's shop, and it has the old leather and the roadside and all the rich ground to grow in, and that tree is not any bigger than that chair bottom. It wouldn't make a saw log more than eight feet long. I suppose I am not in the black walnut section; but from what I have seen of black walnut in a lifetime, I think there is no money in it. I have seen black walnut on the Burr Oak lands of Champaign county that looked as if we might reasonably expect to get something from it. But if you plant black walnuts, wouldn't it be best to plant them in a grove?

Professor Green: Yes, sir; certainly, that would be true. We must not crowd so closely that they cannot develop. That opens the question that I mentioned, that there are some things we do not know.

Mr. Pierce: What would you do with the thinnings?

Professor Green: I would not plant them here. I would plant something else.

Mr. Pierce: How would it do to mix the trees in the plantation?

Professor Green: That would be all right.

Mr. W. W. Farnsworth, Lucas: Some twenty-five years ago I planted two rows of catalpa, the Specioso, and while I have not kept as accurate a record as I should have done to be able to state positively, my experience has been that they would be a profitable farm crop; at least to the extent of growing posts for home purposes. But there is another feature of this forestry question. I refer to the use of evergreen shelter belts. I have on the west side of my house and barn and out-buildings a double row of evergreens, planted there some twenty-five years ago, and the satisfaction I receive from them every year pays me for the outlay. They not only add to the appearance of the premises, but the actual protection and comfort to man and beast in breaking the winds repays me every year. I wouldn't take five hundred dollars for that shelter, and yet it didn't cost five dollars to start it. Now, I have heard the question raised that it might be too warm in the summer time, but it does not hold good. The air is more refreshing than if the evergreens were not there. They are not only a benefit around the house, but it would pay you to plant them on the exposed sides of your stock yard and increase the comfort of man and beast in winter.

Mr. N. G. Nungesser, Crawford: I would like to ask the Professor if he would advise the planting of a locust grove on good soil, good for growing corn?

Professor Green: I should consider it some risk, and not a very great risk either. I know of some large locust groves, one of at least twenty acres, and I am quite sure that as a rule they will pay.

(Note.—Professor Alfred Vivian, of the Ohio State University was to have delivered an address, "Barnyard Manure; Its Care and Preservation," but was prevented from doing so, on account of a death in his family. On request, he very kindly consented to furnish manuscript of his address for publication.—W. W. Miller, Secretary.)

"BARNYARD MANURE—ITS VALUE AND PRESERVATION."

BY PROFESSOR ALBERT VIVIAN, COLUMBUS, OHIO.

It may seem to many in this audience that the subject under discussion has already been worn threadbare by agricultural writers and institute workers, and that there is no need of further enlightenment upon the subject. Yet the title chosen for this talk is the direct result of certain observations made in our own state during the past year, cases of such neglect of the manure as indicates a condition of ignorance regarding the value of this important farm resource well nigh incomprehensible in this progressive age, or an indifference to its worth that is most deplorable.

The wall of the sub-basement of a side hill barn on one farm was half hidden from view by the accumulated manure from a number of head of cattle and horses. The owner upon being questioned reluctantly admitted that it had been nearly three years since he had hauled out any of the manure.

Another instance is the case of a man who congratulates himself on an ingenious arrangement of his barn floor which allows the liquid excrement to drain away keeping the floor "nice and dry" as he expresses it.

A third case is that of a truck farmer who receives hundreds of loads of manure from the city stables yearly, and makes no attempt to protect it, but allows it to be dumped and stand exposed to the weather throughout the season. From this pile of manure a rich, dark brown stream trickles—a mute witness of the owner's carelessness.

Any of these men would think his neighbor crazy if he knew that every year he dumped a thousand dollars in gold into the adjacent river, and yet he cannot, or will not, see that he is doing essentially that very thing, for some day money must be spent for that which he is now wasting.

Before discussing the care of manure let us devote a moment to a few preliminary considerations. It will be necessary to be very brief and only to refer to what might profitably be considered in detail did time allow.

It is well known that plants remove from the soil materials which have been given the general name of plant food. Certain portions of this plant food exist in the soil in forms available to the plants while the rest is unavailable. Continuous cropping removes part of the available food, and may eventually result in so much being removed that not sufficient remains to produce a profitable crop, and it is then said that the soil is exhausted. It has been shown that the only parts of the plant food likely to become exhausted are the nitrogen, phosphoric acid and potash and that the plants differ greatly in the amount of these substances which they require. This table shows the amount of fertility removed from an acre by a number of the more common crops.

Kind of Crop.	Yield per acre.	Nitrogen, lbs.	Phosphoric acid, lbs.	Potash, lbs.	Value.
Barley	40 bushels.	74	23	68	$15 65
Beans	40 bushels.	100	40	70	20 50
Buckwheat	30 bushels.	53	21	60	12 00
Cabbage	15 tons.	100	35	135	23 50
Clover hay	2 tons.	82	18	88	17 60
Corn	50 bushels.	84	30	67	17 45
Oats	40 bushels.	40	14	32	8 30
Onions	350 bushels.	28	10	20	5 70
Potatoes	200 bushels.	33	20	62	9 05
Rye	30 bushels.	49	26	42	10 75
Timothy	1½ tons.	38	15	45	8 70
Tobacco	1,600 pounds.	76	16	200	22 20
Wheat	30 bushels.	62	20	26	11 60

The table must make it apparent to anyone that the continuous removal of crops from the land, with no provision for returning plant food to it, will eventually result in the so-called exhaustion of the soil. And yet every man in this audience knows of farms where the fields have been cropped for years with not the slightest attempt to replenish the supply of food in the soil. The men who work these farms do not deserve to be called farmers but should be designated as "robbers of the soil." I may be radical in my views but I believe that the owner of a farm is morally bound to make every reasonable effort to turn the farm over to his successor in at least as high a state of fertility as when he first obtained it. There is no law to prevent a man from obtaining a farm in a condition of great productivity, cropping it continuously for his own profit, and leaving it at the end of his period of occupancy, with a run down and exhausted soil, but I firmly believe that there will sometime be a day of reckoning for such a man.

The point of first importance in maintaining the fertility of the soil is the careful preservation and application of the manure produced on the farm, for when all things are considered there is no fertilizer so valuable as stable manure.

This table gives the average composition of the fresh manure from the different animals:

	Nitrogen per cent.	Phosphoric acid, per cent.	Potash, per cent.	Value per ton.
Sheep	0.83	0.23	0.67	$3 39
Horse	0.58	0.28	0.53	2 55
Pig	0.45	0.19	0.60	2 14
Cow	0.44	0.16	0.40	1 89
Mixed	0.45	0.21	0.52	2 08

Investigations at the various experiment stations indicate that the average value of the manure produced during a year by 1,000 pounds live weight of the various animals is as follows:

Horse......$27 74	Sheep......$26 09	Cow......$28 27	Pig......$30 00

The value of the manure, however, depends more on the sort of ration fed than on the kind of animal. Experience has shown that with any of the different classes of animals fully 80% of the fertilizing value of the feeding stuff can be recovered in the manure, if means are provided to prevent the loss of any of the liquid excrement.

This table gives the fertilizing value of a few of the common feeding stuffs:

	Nitrogen, pounds.	Phosphoric acid, pounds.	Potash, pounds.	Value per ton.
Corn meal	36.4	14.0	8.0	$6 56
Corn silage	5.6	2.2	7.4	1 32
Corn stover	20.8	5.8	28.0	5 81
Clover hay	41.4	7.6	44.0	8 79
Gluten meal	100.6	6.6	1.0	15 44
Linseed meal	108.6	33.2	27.4	19 22
Cotton seed meal	135.8	57.6	17.4	23 20
Meat scraps	194.0	126.0	14.0	36 10
Oats	41.2	16.4	12.4	7 62
Timothy hay	25.2	10.6	18.0	5 21
Wheat bran	53.4	57.8	32.2	12 52
Wheat straw	11.8	2.4	10.2	2 40

From this table it will readily be seen that the ration is the important factor in determining the value of the manure. A farmer can easily ascertain the approximate value of the manure produced on his farm either by calculating 80% of the feeding stuffs used, or by multiplying the total live weight of the animals on the farm by the figures given in the previous table. Roughly stated the manure produced on a two hundred-acre farm, provided everything was fed on the place, would contain an amount of nitrogen, phosphoric acid and potash which would cost from one thousand six hundred dollars to two thousand dollars if purchased in commercial fertilizers, or from eight to ten dollars per acre.

These values refer to the fresh manure and hold good only when extreme care is taken to prevent losses of any kind. It seems impossible for a great many people to realize that the liquid excrement has any particular value, yet the following table shows it to be far more valuable per ton than the solid excrement.

	Nitrogen, per cent.	Phosphoric acid, per cent.	Potash, per cent.	Value per ton.
Solid	0.30	0.25	0.10	$1 25
Liquid	0.80	trace.	1.40	3 80

What is of more interest to us than the value per ton, however, is the relative values of the total excrements. Suffice it to say that investigations indicate that of the total fertilizing constituents in the manure, 60% of the nitrogen and 50% of the potash is in the liquid excrement, making a little over half the total value of the manure due to the liquid part.

This statement does not tell the whole tale as the nitrogen in the liquid excrement is more valuable per pound than that in the solid, for it is in a soluble condition and is immediately available to the plant while most of the solid excrement must be decomposed before the plant can use it. This difference in value of the nitrogen is nicely shown in an experiment conducted in New Jersey, comparing solid excrement with the mixed manures. In each case exactly the same amount of nitrogen was added to the plot. This table shows the gain in yield as compared with a check plot having no manure added:

	PER CENT. GAIN IN YIELD.	
	Solid excrement only.	Solid and liquid excrement.
First year	15.2	52.7
Second year	69.7	116.9
Third year	47.9	80.6
Average	44.3	83.4

It is clearly shown that the nitrogen in the liquid excrement is the more valuable for immediate results at least, and the table suggests the great loss that may occur if the liquid excrement is not retained.

Another way in which losses may occur in manure is from the leaching effect of rains. The manure as it is frequently handled is each day thrown into the open yard to lie for months, subject to washing by summer and winter rains. In many instances it is even deposited under the eaves of a large barn seemingly to make the washing process more complete.

That the losses in manure due to leaching are far greater than is generally supposed is clearly shown by a recent experiment where four samples of manure were exposed to the weather for varying periods and the loss of fertilizing constituents determined. The results are summarized in this table:

Period.	Nitrogen, per cent.	Phosphoric acid, per cent.	Potash, per cent.
131 days	57	62	72
70 days	44	16	28
76 days	39	63	56
50 days	69	59	72
Average	51	51	61.1

It will be seen that the average loss amounted to more than half the value of the manure during the rather short periods—the longest time being a trifle over four months. On many farms the manure is exposed to the weather for a much longer time.

A third source of loss in stored manure, that may be quite as wasteful as leaching, is what is known as "hot fermentation." It is well known that if manure is thrown into a loose heap it soon begins to heat—the heating in some cases going so far as to produce what is known as "fire-fanging." This heating results in the loss of nitrogen, and the odor of ammonia is generally very perceptible in the neighborhood of a heap of such manure. Ammonia contains nitrogen, so when its odor is apparent we may be sure that the manure is losing nitrogen. Experiments have shown that from 30 to even 80% of the nitrogen in the manure may be driven off by hot fermentation, so that at least half the value of the manure may be lost due to this cause alone.

This brings us to the second part of the subject—the preservation of manure. It must be apparent from what has already been said, that if the full value of the manure is to be realized care must be taken to prevent the loss of the liquid excrement. The barn floors should be made so tight that none of the liquid can seep through. The manure trough behind the cattle, especially, should be made absolutely tight by the use of pitch, cement or other material impervious to water. Litter should be supplied in quantities sufficient to absorb the liquid so completely that the manure may be removed without loss from dripping. It will be found advantageous to cut the material used for bedding if a feed cutter is at hand. Decomposition of the liquid excrement begins almost as soon as voided and large amounts of ammonia may be lost in the barn unless precautions are taken to prevent fermentation. Nothing is so efficacious in preventing this as plenty of bedding. In addition small amounts of land plaster, super-phosphate, or kainite, are sometimes used to advantage. The last two are injurious to the feet of cattle, and if used, should be scattered on the floor beneath the bedding.

Manure is never so valuable as when perfectly fresh, for it is impossible even under the best system of storage to entirely prevent loss of nitrogen. For this reason the plan of hauling the manure from the barn directly to the field is to be recommended whenever there is a field available and the weather is suitable. This method of handling the manure has many points that commend it to the American farmer. In the first place it is the most economical of time and labor, as the manure has to be handled but once, and if the barns are conveniently constructed, can be removed to the field with little more labor than is required to place it in the heap if it is stored. Where the manure is allowed to collect for long periods, it becomes almost impossible to find the time and help necessary to haul it to the field, and the temptation to neglect it entirely is almost irresistible. Again, almost the total value of the manure is realized when it is removed directly to the field and spread over the surface of the ground. To be sure, the rains falling on this manure will leach out the soluble portion, but now it will be carried into the soil where it is needed. The soluble constituents of the manure are "fixed" by the soil, so that there is no danger of their being lost. If the manure is spread in a thin layer it will not heat, so there will be no fear of hot fermentation, and it has been demonstrated that where manure simply dries out when spread on the ground there is no loss of valuable constituents.

It is not always possible to remove the manure to the field immediately, for there may be none ready to receive it, or the weather may be such as to make it undesirable to haul over the ground. In that case it becomes necessary to store the manure for a time, and the question is, how can this be done with the least loss, for it is impossible to entirely prevent loss in stored manures.

It has been shown that the two sources of loss in fertilizing value in the manure after it is removed from the barn are, leaching due to rains, and hot fermentation. Obviously if the maximum value of the manure is to be retained, these two injurious processes must be prevented. The effect of leaching rains may be overcome by keeping the manure under cover so as to protect it from the rains. This method should be in general use, for an inexpensive shed or lean-to is all that is required. Where it is possible to provide the shed with a floor of some water-tight material, it is, of course, desirable to do so, as that prevents danger of loss of any liquid excrement that might not be properly absorbed by the bedding.

The whole secret of preventing hot fermentation may be summed up in these few words: "Keep the manure heap compact and moist." The heating of manure is caused by a class of bacteria which require free oxygen for the performance of their functions. Unless these bacteria are provided with sufficient air it is impossible for them to live, and consequently hot fermentation cannot occur. In building the manure pile, therefore, great care should be taken to have the heap well compacted by tramping or other means. Each daily addition to the pile should be firmly packed into place and the sides and top of the heap should be smooth and firm in order to exclude as much air as possible. If the pile is made in this way the bacteria soon use all the air that is enclosed in it, and the manure never becomes very hot. The presence of an abundance of moisture tends to prevent hot fermentation, due first to the cooling effect of the moisture itself, and to the fact that the moisture prevents the entrance of air. The manure heap should be carefully watched and water added to it occasionally if it shows any tendency to become too dry. Keeping the pile compact and damp in this way will stop the injurious hot fermentation.

Roberts and other writers recommend the use of covered barnyards for the preservation of manure. These are simply sheds with good roofs but no sides, and large enough to allow the cattle some room to move about. The bottom is excavated a few inches and made tight by puddling and pounding the clay or by use of grout. The manure as it is removed from the barn is spread evenly on the floor of the covered yard, is tramped into a compact mass by the cattle and is kept moist by the liquid excrement. The manure produced in this way is of excellent quality, can be easily handled when its removal is necessary and experiments indicate that the losses are reduced to a minimum.

The advantages of such a covered yard as a place in which the cattle may take mild exercise in severe weather will be apparent to most farmers.

The plan followed by many agriculturalists of throwing horse and cattle manure into a basement room to be worked over by the hogs is perhaps as good a method as could be devised when considered from the preservation of manure standpoint. The working over and tramping of the manure by the swine accompanied by the addition of their own moist excrement, controls the fermentation so as to prevent undue heating, and very little fertilizing value is lost from manure produced in this way, if the number of pigs is sufficient to thoroughly work it over.

Occasionally it becomes absolutely necessary to store the manure when no cover of any kind is at hand. In case it must be left in the open, the heap should be made so high that even the hardest rains will not soak entirely through it. The sides of the pile should be kept as nearly perpendicular as possible, and the top should dip slightly toward the center, and great care be exercised to make the heap compact.

It is not within the scope of this talk to discuss the various possible combinations of commercial fertilizers and farm manures, but I cannot leave this subject without a brief reference to the researches of our own experiment station on the use of floats in connection with manure. It is probably well known to many of you that numerous experiments have been made in the past to test the value of floats or ground phosphate rock as a source of phosphoric acid supply for the plant, and that these experiments often indicated that there was practically no benefit from the application of unacidulated rock to the land.

The experiments at the Ohio station show conclusively that when the ground phosphate rock is mixed with farm manure it has a high fertilizing value. In fact the experiments which have now been running for a number of years indicate that when used in this way the ground rock is quite as valuable as acidulated rock, the manure having changed the phosphate to some more available form.

Some difference of opinion exists among farmers as to the relative value of barnyard manure and commercial fertilizers for crop production, but it is worthy of note that those who are most diligent in caring for the manure are the ones who have most faith in its worth as a fertilizer. The fact that barnyard manure has been used so universally by agriculturalists, and for so many centuries, is one of the strongest arguments in its favor. That the popular estimate of its value is established by scientific experiment is well shown by investigations carried on at Rothamsted. On certain plots crops have been grown continuously with no fertilizer of any kind added; on other plots barnyard manure has been used every year, and on still others various combinations of commercial fertilizers have been tested. The table gives the yields of barley and wheat from the unmanured plots, the plots dressed with barnyard manure and the highest results obtained from the use of any combination of commercial fertilizing materials. The tests extend over forty years, but to shorten the table the results are given here in averages for five eight-year periods. (Fractions have been omitted):

	BARLEY. Bushels per acre.			WHEAT. Bushels per acre.		
	No manure.	Barnyard Manure.	Commercial Fertilizers.	No manure.	Barnyard Manure.	Commercial Fertilizers.
First eight years	24	44	48	16	34	36
Second eight years	18	52	51	13	35	39
Third eight years	14	49	45	12	35	36
Fourth eight years	14	52	42	10	28	32
Fifth eight years	11	44	41	12	39	38
Average (forty years)	16	48	45	13	34	36

It will be seen that while both the fertilized plots gave much larger yields than the one receiving no addition of plant food, there is practically no difference between the plots dressed with barnyard manure and the best commercial fertilizers. This test is hardly fair to the barnyard manure, as the quantities of commercial fertilizers applied were far in excess of anything used in general practice; the amount of nitrogen added to the wheat, for instance, being equivalent to that contained in eight hundred pounds of nitrate of soda, which would cost practically as much as the wheat would bring on the market.

The lasting effects of barnyard manure are very marked. On one plot at Rothamsted the effect of the manure on the yield of barley was perceptible twenty years after the last application.

Taking everything into consideration, I consider barnyard manure the best of all fertilizers. It supplies the elements of plant food in practically the ratio in which they are found in the plant. It is also the only fertilizer that supplies any appreciable amount of humus to the soil, and the farther investigation is carried the more convinced we feel that loss of fertility of soil is more often due to the depletion of the humus than to any other cause. Farmers must depend mainly on manure to supply the lacking humus, for it is only in exceptional cases that green manuring can be practiced with profit.

Barnyard manure is the safest fertilizer to use and this is especially true if the farmer is careless in his methods. There is little danger of lasting injury to the soil from the use of manure but I do not need to tell this audience that it is possible to use commercial fertilizers in such a way as to make the soil poorer after their use than it was before.

There is no doubt in my mind that in a system of strictly animal husbandry, where all crops produced are fed on the place, the farm will not decrease in fertility—nay, more—may actually increase provided a proper use is made of leguminous crops. This statement is especially true where purchased concentrates are added to the ration. Even where part of the grain is sold it is possible to maintain the fertility by using all the rough feed—if the lost phosphoric acid is replaced by acidulated rock, or floats added to the manure.

The President: The time has arrived, gentlemen, when we shall have to close the proceedings of the session.

Mr. A. L. White, Muskingum: I move that we extend to President Roudebush a vote of thanks for the splendid manner in which he has conducted the proceedings of this institute.

Motion carried unanimously.

And thereupon the institute adjourned.

REPORT OF THE ANNUAL MEETING

OF THE

OHIO STATE BOARD OF AGRICULTURE,

Held in the Board of Trade Auditorium, Columbus, January 11th, 1906.

The annual meeting of the Ohio State Board of Agriculture was called to order by the President, Hon. William Miller, at 10:30 o'clock a. m.

President Miller: It is an act of courtesy to appoint a committee to wait upon the Governor and ask him to address the State Board of Agriculture. I therefore appoint as that committee Messrs. Cromley, of Pickaway county, Roudebush of Clermont county and Carpenter of Meigs county. Will the committee please wait upon the Governor and escort him to the hall.

President Miller: The Secretary will now call the roll of delegates.

On the call of the roll of counties the following delegates responded:

LIST OF DELEGATES.

COUNTIES.	NAMES.	POSTOFFICE.
Adams	W. S. Kincaid	West Union.
Allen	Aaron States	Beaverdam.
Ashland	Samuel Aber	Plimpton.
Ashtabula	H. A. Mixer	Pierpont.
Athens	S. F. Beveridge	Marshfield.
Auglaize	Charles Frazier	Wapakoneta.
Belmont	D. S. Creamer	St. Clairsville.
Brown	Jacob Pobst	Georgetown.
Butler	J. A. Slade	Hamilton.
Carroll	M. O. Cooper	Magnolia.
Champaign	Charles H. Ganson	Urbana.
Clark	T. L. Calvert	Selma.
Clermont	G. M. Roudebush	Newtonsville.
Clinton	James N. Miller	Wilmington.
Coshocton	Robert Boyd	Coshocton.
Crawford	J. W. Stuckman	Bucyrus.
E. Cuyahoga	E. C. Foote	Warrensville.
W. Cuyahoga	W. G. Hutchison	Berea.
Darke	D. H. Sherwood	Arcanum.
Defiance	Z. H. Miller	Sherwood.
Delaware	John Harter	Delaware.
Erie	C. F. Steen	Sandusky.
Fairfield	Jacob Alspach	Lancaster.
Fayette	Reuben Rankin	Parrotts.

LIST OF DELEGATES—Continued.

COUNTIES.	NAMES.	POSTOFFICE.
Franklin	E. A. Peters	Groveport.
Fulton	A. F. Shaeffer	Wauseon.
Gallia	C. D. McCormick	McCormick.
Geauga	J. E. Gooding	Chardon.
Greene	C. M. Austin	Bellbrook.
Guernsey	A. J. Clark	Cambridge.
Hamilton	D. L. Sampson	Cincinnati.
Hancock	W. H. Deeds	Findlay.
Hardin	A. T. Evans	Kenton.
Harrison	R. H. Minteer	Cadiz.
Henry	C. J. Hartman	Napoleon, R. R. 1.
Highland	Dr. H. M. Brown	Hillsboro.
Hocking	Henry Hansel	Laurelville.
Holmes	D. E. McDowell	Killbuck.
Huron	M. A. Bowser	North Fairfield.
Jackson	John W. Hays	Jackson.
Jefferson	Alonzo Hayne	Adena.
Knox	J. N. Braddock	Fredericktown.
Lake	N. C. Frost	West Mentor.
Lawrence	L. D. Eaton	Labelle.
Licking	W. H. Kussmaul	Granville.
Logan	J. C. Aikin	Bellefontaine.
Lorain	A. Needing	Elyria.
Lucas	E. H. Cushman	Sylvania.
Madison	L. W. Kilgore	London.
Mahoning	J. C. Bowman	Berlin Center.
Marion	H. W. Cookston	Marion.
Medina	F. E. Clark	Medina.
Meigs	Hon. M. E. Rothburn	Rutland.
Mercer	C. F. Cruger	Celina.
Miami	W. F. Robbins	Piqua.
Monroe	W. C. Mooney	Woodsfield.
Montgomery	S. D. Bear	Dayton.
Morgan	P. F. Reed	McConnelsville.
Morrow	C. W. McFarland	Mt. Gilead.
Muskingum	R. J. White	Zanesville.
Noble	John McWilliams	Caldwell.
Ottawa	George H. Hyde	Port Clinton.
Paulding	John H. Laughlin	Paulding.
Perry	Charles C. Chappelear	New Lexington.
Pickaway	William Markel	Kingston.
Pike	W. A. Russell	Waverley.
Portage	C. R. Doolittle	Kent.
Preble	Noah Siler	Eaton.
Putnam	A. P. Sandles	Ottawa.
Richland	W. H. Shryer	Mansfield.
Ross	William L. Parrett	South Salem.
Sandusky	J. J. Brim	Woodville.
Scioto	W. A. McGeorge	Mt. Joy.
Seneca	Silas Roher	Tiffin.
Shelby	J. E. Russell	Sidney.

LIST OF DELEGATES—Concluded.

COUNTIES.	NAMES.	POSTOFFICE.
Stark	J. J. Snyder	Canton.
Summit	O. J. Swinehart	Akron.
Trumbull	Albert Brown	Warren.
Tuscarawas	J. S. Carnes	Canal Dover.
Union	Homer Southard	Marysville.
Van Wert	E. B. Gilliland	Van Wert.
Vinton	V. S. Vinney	New Plymouth.
Warren	A. D. Smith	Lebanon.
Wayne	G. J. Ebright	Wooster.
Williams	J. A. Faber	Bryan.
Wood	W. H. Hannah	Tontogany.
Wyandot	A. F. Schoenberger	Upper Sandusky.

The committee appointed to wait upon the Governor and invite him to address the meeting reported through its chairman, Senator Carpenter, that Governor Pattison, on account of illness, was unable to be present, but that his Secretary, Hon. Lewis B. Houck, had been invited to speak and that he was then present to respond for the Governor.

ADDRESS OF HON. LEWIS B. HOUCK.

Mr. Chairman and Farmers of Ohio: I am instructed by the Chief Executive of this state to say to you that on account of the trying ordeal through which he has passed during the last few weeks, and the inclemency of the weather on last Monday by reason of which he contracted a slight cold, he is unable to be with you this morning. But through me, his Secretary, he desires to welcome to the capital city of Ohio the farmers and the representatives of the agricultural interests of this and adjoining states, and to say to you that he greets you and that he welcomes you here.

And now, when I remind you that the agricultural interests of Ohio and of the other states of this Union are of greater importance than any other one thing, I am only telling you what you know. But how unfortunate it is for the farmer that on everything he has to sell someone else establishes the price; and everything that he has to buy, the other fellow fixes the price. Every class of people in the state seems to have a stronger and better organization for the protection of themselves and their kind than the agriculturists.

But I come to you this morning to say that at the dawn of this new century, at the beginning of this new life, I believe there are better things for the agriculturists and the farming interests of this state than in the years that have gone by. And I plead with the representatives here today for a stronger, better and more healthy school system in our public schools throughout the rural districts of this state. (Applause.) For in this republic the great men and the noble women have come from the farms and from the rural districts; and I plead with you, as the representatives of the farming interests of Ohio and adjoining states, to do that thing which will bring about a purer, better and stronger home life for your boys and girls; for after all, my friends, the strength of this state, the greatness and the grandeur of this republic today, and of the years that are yet to come, are in the purity of your home life and of my home life. And so it is that the agriculturists of Ohio and of our sister states are alert to the interests that will make their homes and their communities stronger and better.

I commend to the people of Ohio the enthusiasm that the different counties throughout the state are showing in the way of agricultural interests at county fairs. For, as our county fairs are encouraged, the farmers are inspired in the raising of better stock and in the production of all farm products.

And now, on behalf of the Chief Executive of the great Buckeye State, I welcome you, the representative farmers and agriculturists and their wives and their loved ones to this prosperous capital city of Ohio. May your visit with us be not only an inspiration to the Chief Executive and all of his subordinates, but may the work that you do, the lessons that you teach, the thoughts that you express, the hearty hand-shakes and the greetings between yourselves and among you, go out through the length and breadth of our state to inspire young men and young women to stay upon the farm and become versed in all the agricultural lines and interests, for the time is now here when the farmer does not sow wheat in this field or plant corn in that field or on any other part of the farm because the fences are there; but he sows the wheat and plants the corn in that particular place, because he has been educated and his mind has been developed until he is able to analyze the elements and determine why that particular field is the better adapted to produce a certain kind of cereal or grain than some other part of the farm.

So I plead for the agricultural and farming interests of Ohio; to send your boys and your girls to our State University and the other colleges and institutions of higher learning in this and adjoining states that they may be developed in mind and heart to know that you must plant in a certain kind of ground or sow in a certain kind of soil a particular cereal, or plant a certain kind of grain in order that it may produce its like in that degree that nature and God and the elements intended.

And so, Mr. President and friends, I congratulate the farmers of Ohio; I congratulate the stock raisers and breeders of Ohio; I congratulate all the varied interests here represented upon your past achievements, progress and success. And I believe that just such gatherings and meetings as this, where from all over the state we meet and discuss the different themes for the advancement of your interests and mine, and for the development of that which is near and dear to your heart and mine, that you will not only make the business and occupation in which you are engaged better, but you will make this state stronger, better and nobler, and our boys and our girls of the years and the generations that are yet to be will be better prepared to fight the battles of this life. (Great applause.)

The President, Hon. William Miller, delivered his annual address as follows:

Members of the Ohio State Board of Agriculture:

The Statute provides that there shall be held in the city of Columbus an annual meeting of the Ohio State Board of Agriculture, together with a duly authorized delegate from each county, for the purpose of deliberation and consultation as to the wants, prospects and conditions of agriculture throughout the state. We are assembled today in obedience to that law. Custom has made it the duty of the president of the Board to deliver an annual address. I therefore ask your patience while I attempt to perform that duty.

A brief review of the work of the Board during the year may not be inappropriate.

President McKinley said in his last speech, at Buffalo, that "Fairs and expositions are the timepieces which mark the progress of nations." If agricultural progress in Ohio be gauged by the same rule, surely it must now be at the flood-tide of prosperity, for the Ohio State Fair held last September was the most successful and satisfactory, in all respects, ever held in the state. The number and character of the exhibits, the satisfactory receipts at the gate, the freedom from demoralizing side shows and catch-penny games, and the convenience and completeness of its buildings, make the Ohio State Fair a source of just pride to every farmer in Ohio. The legislature has acted wisely in assisting to provide a home for an annual exhibit of Ohio's industrial progress. The grounds belonging to the State have advanced greatly in value, making it also a profitable financial investment.

The Board, since the last annual meeting, has erected a building for the exhibition of poultry and pet stock, and two machinery buildings. This added exhibition space has permitted the removal of many unsightly private buildings, which detracted from the beauty of the grounds and the symmetry and convenience of exhibits. Much has been accomplished also during the year in the work of constructing sewers. With the improvements already completed, the grounds of the Ohio State Fair are conceded to be the best for exhibition purposes of any State in the Union. To keep pace with the continually growing needs of the fair, a new amphitheater and a concessions building should be erected during the present year; it would be money wisely invested, for each would be a source of revenue. In former times the work of the board consisted wholly in the conduct and management of an annual fair. In recent years other duties have been added by the legislature, until much equally important work is under its management and control.

The work of inspection of feed stuffs and fertilizers placed by the legislature under the direction of the Secretary of this Board is giving satisfactory results, protecting the purchaser as well as the manufacturer of honest goods. The bulletins giving the results of analyses of goods of this character offered for sale in Ohio are available to all, and should be in the hands of every intending purchaser. It is gratifying to note that there is much less complaint of adulteration than when this law was passed. It is a wise measure and has already saved vast sums to the farmers of the state by reason of the information received through this division.

The prompt gathering of crop and live stock statistics by the fifteen hundred correspondents throughout the state, and their publication by the board, continue to furnish the farmer and others interested with early and reliable information as to crop conditions throughout the state.

The work of the Division of Nursery and Orchard Inspection is steadily growing. Over five hundred nurseries were inspected last year, an increase of more than one hundred compared with the number examined the year before. The benefits derived by preventing dissemination of infected stock has more than repaid the cost of administering the work of this Division.

Many orchards have been examined, on petition of the owners, in order to ascertain whether they were infested with San Jose scale or other dangerous pests. These inspections have often enabled fruit growers to treat trees before these pests had increased to a sufficient extent to cause serious injury. In some cases the San Jose scale has been stamped out by prompt and thorough treatment.

Many complaints of insect depredations have been investigated and remedies suggested for their control. The testing of remedies has formed a prominent part of the work undertaken, and much information has been published in bulletin form for free distribution.

The annual report of this Division, which is also sent free to applicants, will afford ample proof that the work of nursery and orchard inspection should be continued.

THE BOARD OF LIVE STOCK COMMISSIONERS.

The present Board was organized, and entered upon its duties, in May, 1902. From the beginning its efforts have been directed toward developing its work along lines that promised to lead to definite results. The effect of this has been a marked growth in the scope of its work and a constant increase in the demand for its services.

Although naturally limited in the exercise of its functions by inadequate appropriations, it has laid a foundation for more effective and extensive work in the future. The Board, with the co-operation of the National Bureau of Animal Industry, has successfully prevented the spread of scab in sheep and the introduction of southern or Texas fever among cattle. Two serious outbreaks of glanders, in different parts of the state, besides isolated cases that were scattered over seven counties, have been checked. Several outbreaks of anthrax and mange in horses and cattle, of coital exanthenia in breeding horses, and numerous cases of sporadic diseases have been investigated and successful measures have been instituted for their control or eradication. During the past year alone one hundred and eight field investigations were made by the veterinarian; these included, besides the diseases already referred to, actinomycosis in cattle, nodular disease in sheep, swine plague, tuberculosis, etc. A number of tuberculin tests of dairy herds have been made in various parts of the state where the owners of such herds requested the services of the Board to aid them in ridding their herds of disease.

The effect of this work, together with that of printed information in the form of annual reports, press bulletins and circulars of information that have been distributed through the press and otherwise, has been to increase the demand for the services of the Board far beyond its means of complying with the same.

The Board is urged from all quarters to aid individuals and communities in solving the problems of ridding dairy herds of tuberculosis, protecting the swine industry from the ravages of cholera and securing the safety of all domestic animals, as well as human beings, against that most dreaded of diseases, rabies (hydrophobia). During the past year rabies has been reported from nearly every county in the state.

These conditions are not peculiar to Ohio, they exist, in more or less modified form, in all states and in all countries in which the enforcement of live stock sanitary measures has not received proper attention or where, for various reasons, this has been delayed.

Notable examples of what can be done toward ameliorating these conditions are furnished by some European countries and by a number of our own states. Germany has shown us that rabies can be positively stamped out in the short space of a year. Pennsylvania furnishes an example of the grand work that can be accomplished toward the repression of tuberculosis, and the State of Minnesota, with marked success, is leading the way toward the solution of the hog cholera problem.

The ravages of these diseases alone have cost the live stock industry of our state at least twenty million dollars within the past ten years. For the prevention of this loss the State of Ohio has placed at the disposal of its board of live stock commissioners the sum of five thousand dollars per annum.

At least fifteen or twenty other states, few if any of which have a live stock valuation approaching that for Ohio, expend from two to twenty times this amount for similar purposes. The State of Massachusetts, one-fifth the size of Ohio, with a live stock industry that cannot be compared with ours, finds it profitable to expend nearly one hundred thousand dollars annually for its protection against dangerous infectious diseases.

An appropriation of fifty thousand dollars per annum for the use of this Board would be the very least that would enable it to conduct its work on a scale that could at all compare with the importance of the industry that it is intended to protect. This would be less than 2½% of the preventable losses which this industry suffers annually.

The Board believes that the wise expenditure of this sum, with the aid of certain legislation that would be necessary to enable it to carry out a system of inspection for shipments of stock into and out of the state and for controlling the movements of diseased animals within its borders, would result in a saving to the state of many times the sum appropriated. Aside from the direct saving by those actually engaged in the live stock business, the resulting reputation that we would gain abroad as producers of healthy live stock, would be a wonderful stimulus to trade, while the improved quality of our animal food products would be nothing more than the citizens of any civilized state should expect to enjoy.

The Board hopes that it has demonstrated that money expended for the improvement of the sanitary condition of its live stock is the very best kind of an investment for the State, and trusts that the Seventy-seventh General Assembly will deem it wise to provide liberally for the protection of an industry that is the very foundation of our material welfare and consequently affects every citizen of the state.

It is now twenty-five years since the first farmers' institute was held in Ohio, but they are still growing in scope and favor with the people. Their usefulness is no longer doubted by the progressive farmer. They bring men and women from different parts of county and state together, with their experience and information upon the various branches of agriculture, horticulture, stock raising, dairying, etc. The information received at these institutes often furnishes a short cut to many useful reforms on the farm. The results accomplished prove the wisdom of the State Legislature in recognizing and lending liberal aid to these schools of agriculture. Last winter two hundred and forty-three institutes were held, covering every county in the state, with an attendance of over eighty thousand. Yet the demand is for many more institutes than the Board, with the present appropriation, can supply. It is the aim of the management to employ such speakers as keep themselves informed as to the latest discoveries in agricultural science, and put them in practice upon their own farms. The demand from the people is more and more for the man who has won success in his own specialties—the one who does things rather than the man who talks—the one who has earned his title to a place on the force from his own farm experience. The correspondence reaching the Secretary's office teaches us that the people have no use for that man whose practice on his own farm does not correspond with his teaching at institutes, and woe betide him when they find him out.

In many places there is a tendency to depend too much upon the state speakers. They are only sent to help. They cannot be expected to always give all the information needed upon the local problems confronting the farmers in the different sections of the state; they are bright, progressive men, doing excellent work, always aiming to make the institutes of more value to the farmer. The officers, when arranging for the institutes, should keep in mind that the solid lasting benefits derived from these meetings must be drawn out of the home people. Encourage the young; imbue them with "the spirit of their calling." A community must have a strong pulsating spirit of farm pride. No country can maintain its fertility and make continued agricultural progress where there is a lack of such spirit in the young men who are to succeed in the handling of the farms. "It is the spirit of their calling which giveth life."

If our Agricultural College and the Agricultural Experiment Station could be so supported that they could make it a part of their work to have a representative at each of these home schools, institute and institution would derive mutual benefit. The farmer needs to be taught what is new in agricultural science and how to apply that teaching in his daily life work, and also that there is no gulf fixed between the scientist and the farmer. The scientist needs to come in contact with the toilers he is seeking to reach; learn their wants and needs. Both would be mutually benefited and helped.

Your Board has been most fortunate in the securing of men to administer its varied duties. I can say, without flattery, that no man in this or any other state is so thoroughly qualified, by education, experience and sympathy, to manage the affairs of an extensive department of agriculture as Secretary W. W. Miller. He is as big as the place he occupies, and under his capable direction the agricultural interests of the state will continue to expand, will do better work and more of it than ever before. (Applause.)

In Dr. Fischer, veterinarian of the Live Stock Commission, the State has the services of a most competent official. In veterinary science he has no superior in the state.

Professor Burgess, the entomologist in charge of the Nursery and Orchard Inspection, is an expert in his specialty and is doing excellent work.

In all the employes of the department there exists a harmony and unity of purpose to help in every way to promote the interests of agriculture.

Kept absolutely free from politics and under the management of farmers who have created and developed it, the Department of Agriculture can be relied on to do the great work which awaits it. It must be kept out of politics; it must be kept in closest touch with the farmer, the College of Agriculture, Ohio State University and the Agricultural Experiment Station. It must enlarge its scope and work in harmony with all agencies for the development of Ohio agriculture.

As the statute provides for deliberation today upon the "wants, prospects and conditions" of agriculture, bear with me while I allude to some of the conditions existing not immediately connected with the work of the Board. Some of them portend harm to the State unless soon corrected.

Our fathers, on coming to Ohio, found a forest growth covering the soil, the like of which no human eye will see again. Nature had been so prodigal of tree growth that it was looked upon as an enemy to be destroyed. The forest and the Indian were considered of value only when dead. As a result, the forest, one of the best natural assets of the state, has disappeared. The denuded hills are rapidly losing their fertile soil by washing into the streams. The water supply has become irregular and uncertain. Farm crops need windbreaks and shelter belts to retain soil fertility and highest crop production. The railroads are beginning to feel the pinch of decreasing forest supplies. The situation is indeed grave, and needs prompt and immediate attention. It is said that at the present rate of destruction, the forests of the United States will disappear in forty years. Forest investigators in this country and in Europe have demonstrated that to conserve the fertility of a country, 25% of its area ought to be covered with forests.

The farmers of Ohio ought to be in some way awakened to the prospects awaiting succeeding generations if they permit the destruction of trees and forests to continue without doing their share to preserve an inheritance, which of right belongs to their children.

Let us not complain of graft, embezzlement, or breaches of trust, while we are robbing those who come after us of their rightful inheritance. To the farmers of Ohio is given the trust of leaving the state in as good condition as they found it. If our fields are less fertile, our orchards less fruitful, our forests less valuable, than when given to our charge we are robbing the defenseless.

The government is doing much in the way of forest preservation. Our own state, through its agricultural experiment station and forestry society is doing excellent work with the means at its command. The railroads are awaking to the coming shortage in their timber supply. But what is needed, more than all else, is to create a sentiment among the farmers of Ohio to co-operate with these agencies to preserve and improve the wood-lot and forest area remaining.

The horticultural interests of our state are not keeping pace with the progress of other states. While Ohio, compared with other states ranks fourth in value of its orchard products, dealers in our larger cities tell us that 90% of the fruit consumed is grown outside the state. It has been successfully demonstrated that fruit grown in Ohio is surpassed by none in quality. With the state, as with the nation, home growers should supply the needs of home consumers of those products adapted to our conditions of soil and climate. Insect pests and diseases have so multiplied as to discourage the production of fruit, and the older orchards are being neglected and few planted to replace them. The fruit industry needs the fostering care and protection of the State. Ohio expends nearly two hundred thousand dollars to maintain a citizen soldiery to have it ready, should emergency arise, to repel invasion and protect the property of its citizens. The enemies of the fruit interests of the State are already here; let us ask the State not only to aid in the repression, but in the encouragement of the industry.

About the time of the organization of the State Board of Agriculture there was organized, in the city of Columbus, the Ohio Pomological Society, afterwards called the Ohio Horticultural Society. This society has been doing good work. Its purpose has been, mainly, to make and publish an annual report containing the newest things in horticulture. The State Board of Agriculture aided in the dissemination of this report by making it for many years a part of its annual report.

It has recently been discovered that the Legislature of Ohio has been doing many things unconstitutional, and the appropriation heretofore given this society was one of them. To avoid being deprived of its revenue, the society has asked that it be made a division of this department, with a man at its head who could devote his whole time to the advancement of horticulture. It is a wise move and should meet the encouragement of the Legislature.

Our people are awaking to the needs of agricultural education and demanding that the foundations be laid in the common school. Nature study, or elementary agriculture, should have a place in every school, for it teaches the boy and girl to appreciate their environments, and fits them for an intelligent interest in the common things of life. The township high school should, at least, afford the rudiments of a practical education for farm life. Teachers should be taught that there is mental culture in the study of live stock and of grain and of fruits, and of flowers. But a small percentage of the farm youth of Ohio can ever avail themselves of the advantages of Ohio's efficient College of Agriculture. But the College of Agriculture should be so fully endowed that it can go to the homes and the country schools and help the youth to an intelligent interest in his surroundings in forest, garden and field. Let us educate toward the farm, rather than away from it; let us inculcate a spirit of farm pride, of hope, of enterprise, of ambition, if we would keep the most enterprising of the young men on the farm.

There exists most urgent need for reform in the manner in which the school grounds of the State are kept. The average country schoolhouse is not architecturally a thing of beauty, but too often its lack of care and its surroundings are both an abomination and desolation.

Were I to suggest a change in the talks of the institute speakers, it would be that each have on his list a talk on the planting and care of school and home grounds, the mission and place of beauty in farm management. If it was not called for by program, committees would be prepared to weave it into every other topic discussed. As a class, farmers are many times neglectful of the appearance of home surroundings. He who neglects to plant, adorn and beautify the landscape as well as to improve the appearance of home surroundings, fails in his duty to those who are to follow him.

Another of the wants of agriculture—one which the Ohio farmer needs more than all else—is to look beyond the results of today. In order to harvest the largest returns from his fields, the farmer is prone to rob them today of fertility which belongs to his children. To reap returns from the forest, that part belonging to coming generations is ruthlessly destroyed. Because fruit trees require years of care and culture before producing dividends, he neglects to plant. He expects his investments of today to bring him rich returns tomorrow. Our fair state cannot maintain her place as a leader in the things which go to make the world richer and mankind happier and better, if we continue to rob posterity of its rightful inheritance.

It requires no prophetic vision to see that the inventions which abridge distance are opening a new world to the life of the Ohio farmer. The telephone, the steam and interurban roads, the rural mail, and good roads are distinguishing lines which have separated the farmer and his city brother. The tide, which has carried to the city so many ambitious, strong, young men, has turned, and is bringing back to the land men seeking intimacy with forest, garden and field. The growing interest of city population in rural affairs is good and the country will benefit by the interchange; land values will continue to advance. Farm practices must take on the business methods of the successful business man. But the duty of the farmer is not lessened; he should see to it that the current to the city carries none but men and women of integrity and with high ideals; then will our institutions continue to be in safe hands.

Ohio, by her geographical position and the physical formation of the country, must ever be on the highway of commerce between East and West. The iron ore and the coal will continue to meet on her northern border; the making of steel and allied manufactures must increase urban population, giving the Ohio farmer the advantage of a home market. Let him see to it, that no classification or discrimination in railroad rates be allowed which deprives the Ohio farmer of the advantage of his position, and let him demand that none of her politicians be allowed to take steps to hinder or delay prompt adjustment.

As the great teacher of men selected old Judea—on the highway between the three continents of the East—as the place best suited to scatter the precepts he came to unfold, so Ohio's position gives the high privilege of disseminating Ohio ideals. Let those ideals ever be, an incentive to better culture, better living, better stock and a disposition to beautify home surroundings. But better, and above all, let the Ohio idea be to make men and their homes better rather than richer; to educate and broaden that best product of our state, the Ohio man. (Applause, long continued.)

The President: The next business in order will be the report of the treasurer of the State Board of Agriculture, Mr. T. L. Calvert:

Mr. President: I have the honor of presenting the subjoined statement of the financial transactions of the Ohio State Board of Agriculture for the fiscal and calendar year ending December 31, 1905, which shows balance of cash on hand at the close of the previous year, cash received from the several sources of income during the year, disbursements on all accounts, balance of cash in hand at close of the year, and a summary statement of the total cost of the state fair grounds with permanent improvements thereon.

Respectfully submitted,

T. L. Calvert, *Treasurer.*

FINANCIAL STATEMENT OF THE OHIO STATE BOARD OF AGRICULTURE FOR THE YEAR 1905.

RECEIPTS—MISCELLANEOUS.

To cash on hand at last report	$23,231 32	
To amount received from county farmers' institutes	8,373 81	
To amount received from fertilizer licenses	13,640 00	
To amount received from feed stuffs licenses	2,225 00	
To amount received from nursery and orchard inspection	100 03	
To amount received from interest on deposits	675 13	
To amount received from sale of old barometer	10 00	
To amount received from rebate on treasurer's bond	56 25	
To amount received from rebate from C. U. Telephone Company	4 50	
To amount received from refund of insurance premiums	32 05	
To amount received for loss on buildings by lightning	80 78	
To amount received from rent of house on State Fair grounds	50 00	
To amount received from sale of hay	155 70	
To amount received from sale of old buildings	100 00	
To amount received from sale of old lumber	6 50	
		$48,741 07

RECEIPTS—STATE FAIR, 1905.

To amount received from sale of full admission tickets	$42,914 00
To amount received from sale of children's tickets	1,458 25
To amount received from sale of grand stand tickets	3,448 50
To amount received from sale of wagon tickets	42 00
To amount received from night admissions	55 75
To amount received from special admissions	131 40
To amount received from privileges	4,778 23
To amount received from admissions to airship	1,362 95
To amount received from superintendent's fees, caring for exhibits	20 00
To amount received from class entrance fees	1,774 30
To amount received from speed entrance fees	2,585 00
To amount received from Ohio Shorthorn Breeders' Association, special premiums	193 00
To amount received from Polled Durham Breeders' Association, special premiums	200 00

To amount received from Armour Fertilizer Works, special premiums	100 00	
To amount received from collection from American Trotting Association	21 10	
		59,084 48
Total receipts		$107,825 55

EXPENDITURES.

By old outstanding checks paid	$12 00
By amount paid for farmers' institute expense	8,016 01
By amount paid for fertilizer and feed stuffs inspection and analyses	8,117 61
By amount paid for general department expense	679 88
By amount paid for improvements to State Fair grounds	40,107 76
By amount paid for material and supplies for State Fair	411 07
By amount paid for printing and advertising	3,359 67
By amount paid for expense of fair departments	3,023 13
By amount paid for general fair expense	7,610 19
By amount paid for premiums	20,905 75
By amount paid for expense of members	85 50
By balance, cash on hand	15,496 98
Total	$107,825 55

PROPERTY VALUE—STATE FAIR GROUNDS.

Cost of State Fair grounds and improvements at close of 1904	$570,769 63	
Expended for repairs and improvements, 1905	84,773 99	
Total cost to date		$655,543 62

President Miller: The next thing in order will be the report of the Auditing Committee, Mr. C. H. Ganson, chairman:

REPORT OF THE AUDITING COMMITTEE.

The President and Members of the Ohio State Board of Agriculture, in Annual Meeting Assembled:

GENTLEMEN:—The undersigned, your auditing committee, has carefully examined all the books, papers and vouchers of the Ohio State Board of Agriculture, pertaining to its financial transactions for the year 1905, and found all accounts properly and carefully kept, all vouchers valid and properly recorded and filed, and all checks properly receipted and filed.

The Board had, at the close of the year 1904, cash in banks, the sum of twenty-three thousand, two hundred and thirty-one dollars and thirty-two cents ($23,231.32), and received from all sources, other than State appropriations, eighty-four thousand, five hundred and ninety-four dollars and twenty-three cents ($84,594.23), making a total of one hundred and seven thousand, eight hundred and twenty-five dollars and forty-eight cents ($107,825.48) to account for; and it paid out on proper vouchers, all of which are hereby approved, the sum of ninety-two thousand, three hundred and twenty-eight dollars and fifty-seven cents ($92,328.57), leaving unexpended, and properly deposited in banks, fifteen thousand, four hundred and ninety-six dollars and ninety-eight cents ($15,496.98).

Your committee has also carefully examined the transactions of the Board on account of the several appropriations made by the General Assembly and found all carefully and correctly recorded, with proper vouchers on file to cover each and every expenditure.

On pages 402 to 407 inclusive of the "Financial Record" of the Board is entered a summary of all receipts and expenditures for the year.

We take pleasure in reporting that all books, records and papers of the Board are kept and preserved with painstaking care, and the work of your Secretary and his assistants is most cordially commended.

Respectfully submitted,

C. H. GANSON,
L. P. BAILEY,
SAMUEL TAYLOR.

The President: What shall we do with the report of the treasurer and of the auditing committee?

It was moved and seconded that they be adopted, and the motion prevailed unanimously.

The President: The program provides at this time for the appointment of some committees, and I shall now appoint them as follows:

COMMITTEE ON CREDENTIALS.

C. Bordwell, Clermont county.
C. F. Steen, Erie county.
J. J. Snyder, Stark county.

COMMITTEE ON RESOLUTIONS.

E. H. Cushman, Lucas county.
Reuben Rankin, Fayette county.
D. S. Cramer, Belmont county.

At this time the Williamson Sisters' Quartet sang most acceptably.

The President: We have now reached the point in our program when nominations for members of the State Board of Agriculture are in order. There are two members to be elected for the full term of five years, and one member to fill a vacancy of three years. Nominations are now in order.

The following named persons were placed in nomination:

FULL TERM.

William Miller, nominated by W. W. Farnsworth.
J. L. Carpenter, nominated by M. E. Rathburn.
C. W. McFarland, nominated by W. H. Hippard.

FOR VACANCY.

A. A. Giffin, nominated by E. B. Gilliland.
Edward Ammon, nominated by F. C. Mayer.
A. F. Schafer, nominated by Mr. Denman.
Dr. H. M. Brown, nominated by Lowell Roudebush.
W. V. Scott, nominated by Mr. Menteer.
Chris. McKee, nominated by W. F. Acton.
W. H. Hannah, nominated by R. Y. White.

Thereupon the convention recessed until two o'clock p. m.

THURSDAY AFTERNOON SESSION.

Promptly at two o'clock p. m. President Miller called the meeting to order, and it was entertained by music by the Williamson Sisters' Quartet.

The President: The next number upon the program is an address by Professor Thomas Shaw, of St. Paul, Minn., on

"GROWING FORAGE CROPS AND GRASSES."

Mr. Chairman, Ladies and Gentlemen: I believe the subject assigned me is "The Growing of Forage Crops and Grasses." I would preferably take the last subject first—the growing of grasses, because I think it is the more important of the two. I have read that "Corn is King" in the United States. I do not accept that statement in its entirety. I believe that grass is king and that grass always will be king in the United States among the different individual crops that are grown. When I say that, I do not mean to dispute the question that the corn crop, valued from the standpoint of dollars and cents in the market, is more valuable than the grass crop; but the grass crop is valued in the sense of taking it chiefly on the basis of hay, and that is only half the story. There is no enumeration made of the value of the pasture in arable countries, and there is no enumeration made of the value of the grasses of the range. So that I have not a shadow of a doubt, but if the total value of the grass crop of the United States were known, and put along side the total value of the corn crop, that it would be found to overtop the value of the corn crop, great as the latter is.

And I would like to say right here, Mr. Chairman, because I think it is true, that there is no crop in the United States that is so undervalued as the grass crop; that there is no crop grown in the United States that is so abused and underrated and neglected as the grass crop. Now, you ask, how can you abuse or neglect a grass crop, for grass simply grows and grows without attention. Nevertheless, the fact is true that it is an easy matter to abuse a grass crop, and it is commonly done. I do not know, Mr. Chairman, the practice of you farmers in the State of Ohio in regard to taking care of your pastures, but I do know the practice of the farmers in the American Northwest. They graze their pastures literally to death. They do not allow the grass to grow. It is eaten down, if that were possible, before it grows. You get on the train and go in the direction of that section of country to which I refer, I don't care which way you go, and you will find the same story, and before the middle of July the pastures are almost as bare as the public highroad.

Now, that is not the way to treat a grass crop. That is not the way to get the best out of a grass crop, and I do not imagine that the intelligent farmers before me now practice that method of treating a grass crop. I hope that is something that is confined only to the Northwest, which happens to be my home at the present time.

There is one thing about the grass crop that we too seldom consider, and that is this, that it gives us a crop from year to year without added labor. You farmers know that the greatest difficulty that confronts the farmer of the United States today is the labor question. A man, with his boys growing up to help him today to do his work on the farm, may go along and make money, provided he does not put any value on the labor of the boys, and they are not too exacting on him about the money they get. But I do not need to tell you farmers how difficult it is to make money on an arable farm at the present time at the prices that are being paid for wages. Now then, it becomes us to study the way out—if there is a way out—of the difficulty and try to adopt it in our practice. I think there is one way, partially at least, that will help us in this matter, and that is in the first place to let down a little more of our land in grass than is in grass at the present time, and in the second place to give that grass a fair chance, and take care of it. Generally when we put an estimate on the grass crop at all, we do it on the basis of the pounds of milk or pounds of beef that we get from that grass pasture, and that is all. That estimate is not fair to the grass crop, for it gives us more than that. The grass crop is taking care of our land. It protects it and prevents it from washing. It is filling it with humus so that when the land is broken up with the plow we will get a much better crop than we could get if it were not for the fact that grass previously occupied that land.

Now, since such is the value of grass, if it is possible for us to add to its volume, let us try and do it. And I think we can, by a very simple process, and that is by not pasturing it so severely. Many persons make the mistake of turning their live stock on the grass too early in the season, before it gets a good start and before it can provide the stock with any amount of sustenance. And many pasture it down so close that when the winter season comes on it is unable to protect itself from the freezing, but probably not so much in this mild climate as in Minnesota. But we have to give some attention to the protection of our grass if we are going to get from it what we ought to get.

If we can prolong the season of pasturing four weeks in the year, it is doing something toward reducing the cost to which I have referred. Now, we can do it in this way, by keeping up the pasture so that it will never, at any time in the season, be eaten down bare. I do not think one who has never tried it—of couse, I understand perfectly well that some of you farmers know as much—and more—about this question as I, and I am not telling you anything new when I am talking to you in this strain. But possibly there are some in this audience who have not practiced it, and they cannot imagine the difference between the pasture field that is eaten bare and the pasture that is not kept bare during the entire season. Now, suppose the pasture is eaten down bare in the autumn when the winter comes on. When the spring arrives there is no covering over that grass field, and what is the result? The grass does not begin to grow until the season gets warm. But suppose there had been a mulch, as it were, growing up all over the ground in the fall, even if it were only light. Why, just as soon as spring begins to appear the green grass will appear and grow up through the dry grass two or three weeks sooner than it would begin to grow if the mulch were not there.

Now, that is not all. You may be ready to object and say, "Don't you lose all that dead grass that wasn't eaten in the winter?" I answer emphatically

"No." You do not lose it. It has a mission, or two or three missions to perform. In the first place it protects the roots and in the next place when you turn out your animals in the spring two or three weeks earlier, you can see the effect it has upon their health, the effect it has in preventing them from losing weight. Have you ever thought of the amount that a steer will lose when you turn him out from the yard where he has been fed on dry feed entirely, on to grass? Have you ascertained how much that steer will lose? I have, and I have found it to be about sixty pounds. Now, sixty pounds is a pretty considerable loss, and it will take him several weeks, eating that soft grass, to bring back that sixty pounds when you turn him out under those circumstances. So I tell you, farmers, it is a matter of importance whether there shall be a cover on that crop of grass. Well, then, there is another advantage in the autumn of having the pastures well covered with grass. Suppose the farmer in one case has to bring his cattle into the yard the first of November, and suppose that in another case he can leave them out because of the abundance of grass in his field until the end of November. See what that farmer has gained in labor, and his animals will do as well by grazing on that grass as if they had been brought into the yard and fed. (I am not talking about dairy cows now.)

So it is a question of tremendous importance to the farmers. In the first place, the amount of grass that they shall keep on their farms; and in the second place the manner in which this pasture land shall be treated. How can those pastures be made better? It is the easiest thing under the sun if you have the material. The difficulty is to get the material with which to make them better. I do not know what you farmers do with your manure, in the State of Ohio, but I know if I lived in this State I would try, to the greatest extent possible, to put every load of manure upon the farm, upon the grass pasture. In most instances it is practicable. I think it is more practicable to apply farmyard fertilizer that way than any other way in which it can be applied, for there is scarcely any season in the year when you cannot, if you want to, drive out with a load of fertilizer and spread it on that kind of a field.

But someone probably is ready to object, "Don't you destroy the grass? Will the animals eat best in the spring after it has been distributed?" They will not take kindly to it for two or three weeks, but wait a little until the season gets dry and see whether they will eat it or not. But that is not all the benefit he gets. While that fertilizer is making the grass grow up to feed the cattle, it is making the grass roots grow down to put humus in the soil, and it multiplies the grass roots in the soil to an amazing extent, so that when that field is broken up the next year to grow corn it is in fine condition —tell me, farmers, where you get a better seed bed for a corn field than the pasture that has been treated in that way.

The question of fertilizers was brought up yesterday, artificial fertilizers. I do not know whether it would pay the farmers to purchase commercial fertilizers for their pastures. Perhaps some of you farmers can answer that better than I can. But I am here to say that I believe there is a way in which the farmers of Ohio can fertilize their pastures in addition to applying to them the farmyard manure, and that is by grazing sheep on them and fattening sheep while they are grazing, and buying commercial food from the State of Minnesota, if our farmers are foolish enough to sell it. It seems to me that that would be the most practicable way of adding fertility to Ohio soil, by feeding two lots of sheep, one in the early part and one in the latter part of the season, and feeding them unstintedly with corn and oil-cake, all that they will require to fatten them quickly in a period of eight or ten or twelve weeks. It seems to me, farmers, that if that can be done, it is a cheap way to fertilize the land. The sheep do the fertilizing; the sheep do the distributing of the fertilizer, and the distributing of fertilizer is a pretty serious question with you farmers, the item of labor, in getting the fertilizer scattered out over the pasture. The sheep do this and preclude the necessity of labor to be applied in that way.

I do not think that we have ever given this matter the attention in this country that the importance of the question demands. I do not know whether any of you are attempting to grow pastures upon the "European" plan or not. Of course, our conditions are not so favorable for permanent pasture as in Great Britain or some parts of the United States, but I am prepared to say that we ought to give more attention to the laying down of permanent pasture in this and other states than has been given to it in the past. I am not an advocate of extravagant sowing or the growing of grasses not adapted to the climate. Why, we used to read long ago that a man ought to sow from thirty-six to forty-eight pounds of grass seed on an acre of land, expensive grasses. Some of the professors used to tell us that. Why, farmers, you can buy a good acre of land in the State of Minnesota for less than you would pay for a mixture of grasses to sow on that land. I do not believe in that sort of thing, but I do believe in selecting and growing the best grasses that are adapted to that country. Now, you know and I know that clovers, as a rule, are not very permanent under our conditions. They are permanent under some conditions in the United States, but we must take conditions as they are. Clover plants will not live long under our conditions, but we must not conclude from that that clover should not be put in a permanent pasture, because the more permanent pastures are slow in growing. Not a very great quantity, probably about eight pounds per acre all told. Perhaps a couple of pounds should be medium red, a couple of pounds of alfalfa—I mention alfalfa for lands that are adapted to it.

Then, so far as the other grasses are concerned, I would not mention more than four or five. One of those would be blue grass, the second timothy, the third that Russian ————, the fourth would be red top, where the soil is adapted to it. Beyond this, I question very much if any farmer in the State of Ohio can get much advantage by adding other grasses to the mixture which he sows in his permanent pasture. The great advantage, as you know, of having these grasses grow in the same permanent pasture, is that one grows while another does not grow, and in that way pasture is provided during the entire season.

Now, permanent pasture can be treated, of course, by way of fertilizer just exactly in the way as other pastures to which I have referred. I question very much if in many of the northern states you could get a very large permanent pasture as frequently with blue grass and its associate, white clover, but I take it for granted that a permanent pasture of this kind is very easily obtained in the State of Ohio.

I now come to the question of "Forage."

I remember, in going to the State of Minnesota, the first thing I was requested to do was to go out and talk to the farmers for the purpose of encouraging them to go into the growing of sheep. It was just after the Cleveland administration had come into power, and it was known that there was going to be a change in the tariff on wool. And every man who had sheep in the State of Minnesota was trying to see how quickly he could get rid of them. Sheep sold in that state at less than one dollar a head on the farms in the autumn of 1893. I was set to work, though a stranger, to urge them to go into the sheep business. The men who set me at that work ought to have known better. I soon found out better.

There is one thing I admire about an Ohio audience; there is one thing I admire about a New England audience, and that is this: Even if they don't take much stock in what a man says, they will treat him with civility. (Laughter and applause.) Our Westerners won't always do that. (Renewed laughter.) They are men of a very pronounced type. Well, I will tell you what happened when I stood upon the platform in the State of Minnesota to talk to the farmers about growing sheep. Why, when the announcement was made, the response was that I could see about one-third of the entire audience get up and walk out of the house. I pressed my teeth determinedly and I said to myself, "If the farmers don't hear I will get even," and I did get even. They said: "What is the use of talking about growing sheep in Minnesota? Minnesota never can be any good for growing sheep." So I went to the station and began growing pasture for sheep. And there year after year I grew enough to pasture, on ten acres of land, one hundred sheep and lambs summer after summer in that country that was no good for growing sheep. And after a while I took some of those range ewes that could be got for three dollars apiece and began crossing them two or three times in succession with the best kind of a Southdown sire I could get in Minnesota, and from Minnesota we sent down lambs that beat the world at the International Live Stock Show of 1900, a country that could not grow sheep. I got even with the farmers. (Laughter.) Now, it seems to me there is a way in every northern state of growing sheep, perhaps not entirely or exactly on those lines, but by embodying the principle of supplementing grass pastures for the sheep with the other kind of pastures that can be grown for them. We begin, probably, by sowing winter rye in the fall. We divide the field into two or three parts, and you can sow a crop of rape and some sorghum and corn, and the sheep can keep grazing on it.

I tell you, farmers, if the question were put to me today, What is the very best way of destroying weeds? I would answer, do it just that way. I wrote a book on the destruction of weeds, but when I wrote that book I did not know of that way of doing. But I tell you I believe this way is worth more than all I have stated in that book. I want to rewrite it some day, if I live. I would like to know what kind of weed will stay up long under that kind of treatment. Now, remember I am not talking to you about something fanciful, something involving great labor without return. I do not know a much quicker way of making money on a farm than by growing sheep and pastures under those conditions.

Now, that is one of the best kinds of forage that I know of that can be grown. If the question were put, "What do you consider the best forage plant in the United States?" I would unhesitatingly answer that question by saying it is rape. I do not think that plant is worth so much to the farmers in Ohio as it is to the farmers in Minnesota. I do not think it is worth as much to farmers with a land harder to till than forage land, but I do think it is a good plant for farmers in some parts of the states of this Union from sea to sea and from boundary to boundary. Of course, I know that many of you understand the rape plant better than I can tell you. One thing I like about it is this, that you can begin sowing it in the spring and you can sow it on and on and right on until mid-summer, as long as you will have about ten weeks in which the plant can grow. If you get enough moisture to germinate it, you will have a crop of rape. It is getting to be very popular in the American Northwest. I know men who are going to get thousands of sheep, bring them to their farms and feed them on their fields where the grain crops have been grown, but I do not think the rape will grow there as well as on some of the lands in the State of Ohio; I would not expect, however, you would get as good results in Ohio on the average land. I do not know of a better feed that can be grown for young stock. The cost is so little, comparatively, in proportion to the benefit obtained from it.

If the question were put to me, "What do you consider the second valuable forage plant in the United States?" I think I would unhesitatingly say winter rye. A homely kind of a plant. Everybody knows about it, but I wonder if everybody takes it for its worth? It furnishes pasture in the fall and in the spring, and sometimes it will furnish a crop of grain in addition to the pasture. But one of the greatest points about rye is that it is a catch crop, and you can grow it with any other crop at the same season and at the same time. And that is perhaps one of its greatest elements of value.

Then, probably, a little lower in the scale of importance is the sorghum crop. I believe it is in this State that Mr. Waldo Brown lives, and I think I have read again and again in your Ohio Farmer and other papers that he recommends the growing of sorghum. Now, I do not think quite as much of sorghum as a forage crop as I did at one time, but I think a great deal of it as a crop for cutting off and strewing in the pastures, for stock and dairy cows feed upon it wherever it is placed. I do not know of a crop that will furnish as much per acre as that same sorghum if it is properly grown.

There are a great many other forage crops in addition to those I have referred to.

Now, Mr. Chairman, I do not think I can do better than stop right here, and if there is time for it, I shall be glad to answer any questions on this subject if I can.

Mr. F. G. Pontius, Franklin: I would like to know how many days those cattle were pastured and on what kind of grass when they lost sixty pounds right at the offset.

Professor Shaw: It was at the Minnesota Station and they were on blue grass. If I remember correctly, they lost sixty pounds in about a week. You understand I was not trying to prevent their losing flesh. I was trying to find out how much they would lose in that change.

Mr. Pontius: Were they on dry feed?

Professor Shaw: Yes, sir; on dry feed.

Mr. Pontius: Well, then, another point: I never had cattle lose sixty pounds on blue grass. Now, you take a steer that weighs a thousand pounds, I would like to know how much pasture it will take for that steer for six months?

Professor Shaw: That will depend upon the productiveness of the land. Sometimes one acre will pasture that steer for six months, but not often; other times it will take two acres; and I think more commonly it will take more than two acres, probably between two and three.

Mr. Pontius: What kind of grass?

Professor Shaw: Blue grass.

Mr. Pontius: You see these young farmers out East don't want to pasture their land too hard. They have probably twenty or thirty head of cattle and they want to supply a certain amount of ground for them. But how are they going to do it unless they know about what those cattle are going to consume?

Professor Shaw: Then let them grow a soiling feed, if they apprehend that pasture is going to be scarce, to provide for that kind of scarcity. They can grow immensely more feed by growing a soiling feed than by eating the pastures too bare.

Mr. Pontius: How would you start a permanent pasture?

Professor Shaw: You mean how would I prepare the ground for it?

Mr. Pontius: No, I do not mean about preparing the ground. I mean what seed would you sow to get a permanent pasture?

Professor Shaw: I would be influenced somewhat by the kind of soil, but we will say on an average upland clay loam soil I would be inclined to sow about three pounds of medium red clover to one pound of alsac. If white clover was there naturally, I would sow two pounds of alfalfa. That would be to provide pasture mainly for the first and second years. Then I would sow about three pounds of timothy. About three pounds of Russian, about three pounds of red top, if the land were suitable for red top. Some land is not suitable for it; about three pounds of ————. Of course, I would include blue grass. That would make about twenty-three or twenty-four pounds for the permanent pasture.

Mr. Pontius: Now, what we call permanent pasture is this blue grass. We sow timothy here in the fall and clover in February and March, and that clover won't stay with it. I know of a blue grass pasture that never was broken up. It was my father's farm and it is in this county, and it is just as fine a blue grass as you ever saw.

Professor Shaw: I am able to go the entire length with you, sir, in regard to the value of pasture of that kind, but do not lose sight of the fact that where a farmer is managing an arable farm he has got to put grass roots into the land that he drills or something else to take the place of it.

Mr. Pontius: This land is bottom land but not manured. This grass land as you said with barnyard manure would give double the amount of pasture, as I understood you?

Professor Shaw: Yes, sir.

Mr. Pontius: When we plan for a number of animals on a pasture we have to have ample pasture land for them. Now, would it be profitable, where the cattle are standing in grass knee high, to go out there with the manure spreader and spread it over the land?

Professor Shaw: No, sir; I do not think it would be very profitable. But wait. Do not misunderstand me. Put a fair interpretation on what a man says. (Applause.)

Mr. Pontius: Now, I have had cattle on pasture land and had ample pasture land. You know the season changes; the rains come and the grass grows, and I have gone right in the pasture field and made many a ton of good hay.

Professor Shaw: I am glad to know, sir, that you have been able to do that. When I said that fertilizer could be spread over the ground any season of the year, I did not mean that a man was to do foolish things. (Laughter and applause.) But I did mean this, that as a rule he ought to put the fertilizer on some parts of his land. Your pasture fields and your hills will be poor when you cut the hay in the fields if you do not do so.

Mr. Solomon Johnson, Williams: I would like to ask the gentleman a question, because he knows more than I do. I am acquainted with blue grass and red top and most clovers, but we have a grass up there we call the June grass and it is very early, but we do not like it very well. I would like to know what it is?

Professor Shaw: It is blue grass.

Mr. Johnson: Well, we have another kind. Then I have a field of permanent pasture four or five years old, and a gentleman from Darke county was in our section last year and he said it was a regular Kentucky blue grass, but we cannot account for Kentucky blue grass so early. Then we have another grass that we sometimes use for pasture, that seems almost like red top, and grows most all summer. Now, I like the one but I do not like the other.

Professor Shaw: It may be Canadian blue grass. That is pretty light, but it is not quite so good for pasture.

Mr. J. S. Hine, Erie: I have one pasture of fifty acres, and last summer it was not pastured close enough and just now there is a dead grass over parts of it, and it looks to me as if the grass would be pretty slow in coming up through that next spring. I want to know what advantage there would be in burning it off? I know there would be a loss of fertility in burning it off, but I wonder whether the advantage I would gain by cleaning away that rubbish would not more than counter-balance all loss?

Professor Shaw: How much snow is covering the grass at the present time?

Mr. Hine: About half what there is in Columbus here today. (About two inches.)

Professor Shaw: Have you any kind of stock that you could let run out there—horses and young cattle—and work away on it?

Mr. Hine: No, sir.

Professor Shaw: Of course, it will depend on how much there is on it whether you ought to burn it. I do not like burning grass. I will tell you what I saw in the Northwest last summer. I was driving past a six hundred and forty acre pasture field and on one corner the grass was three inches high and on the other part of the pasture it was a foot high. I said to the man who was driving: "What is the matter with that grass?" And he said that the fire got into it last fall and it was burned over, that the fire ran over all that field, and that was the result. Now it does not make so much difference in Ohio because this is a moister climate. But I do not like the idea of burning grass.

Here President Miller made some announcements, and among others, that Senator W. A. Harris, of Chicago, Ill., who was to address the meeting on the subject of "Shorthorn Cattle," would instead speak upon the subject of

"RECIPROCITY AS IT APPLIES TO OUR LIVE STOCK INTERESTS."

Mr. President, Ladies and Gentlemen: I assure you that I would rather go on talking about grasses, provided you would permit me to take a little part in the discussion.

Now, I have a much drier subject to talk about, and I talk about it as a duty, because I feel that all who are concerned in agriculture are interested in live stock husbandry—necessarily so. Live stock husbandry is necessarily the foundation of all agriculture. We, therefore, want to know what are the signs of the times concerning that great industry which spreads all over this country. The discussion practically has commenced and is going now all over the country with regard to the future of the live stock industry. Last January, at the meeting of the National Live Stock Association, which was held at Denver, where were representatives of the live stock industry from Massachusetts and New York to Texas and California, they had the matter under consideration.

There is no question but what there is an enormous surplus of meats produced in this country, just as there is an enormous surplus of breadstuffs produced. We have got in some way to dispose of our surplus. I remember some fifteen or twenty years ago, out in Kansas when we were growing enormous crops of corn, and such were the railway rates and such were the other difficulties in shipping and getting rid of the corn, that we were burning corn for fuel. Corn at eight to ten cents a bushel was a great deal cheaper than coal was at four dollars and fifty cents a ton. It was, therefore, an economical process. That seemed a heartless and shameful thing. We had an ex-governor in Kansas at that time—a very able man—who was tremendously impressed with the evil of such a plan, and he went about Kansas lecturing on "What shall we do with our corn?" There was at the same time a very distinguished lady who thought her sex was down-trodden, that they did not receive all the rights and privileges they ought to have, and she was lecturing on "What shall we do with our daughters?" Some wag said that perhaps we might solve the problem at once by feeding our corn to our daughters. (Laughter.)

Now, we have in this country a school of economic philosophers who occupy a very similar position. They are patriotic and well-meaning men; and I want it understood that I make no reference whatever to any political party. But these gentlemen assume that, in some way, we are going to manufacture enough to supply the farmers and keep the factories running, and the farmers will feed the operatives and be kept busy; but that is an impossible condition. We have got to have eternally in this country an enormous surplus which must in some way go to feed the rest of the world, and our manufacturing ability can rapidly supply the world with anything else it wants. That is what I call the manifest destiny of the great American people.

That is the question: How shall we dispose of our surplus? I want to call your attention to the relative situation here and that which exists abroad just now. I have been in Washington and have been engaged upon this special work, and consequently it is all fresh matter in my mind. A day or two ago in Chicago, I picked up one of our principal live stock papers and I saw this: "Cattle receipts excessive. Big flood of steers caused a decline of twenty-five cents to forty cents in medium cattle. Close to ninety-three thousand cattle arrived this week. The record for total receipts was not broken by about two thousand five hundred head, but there never was a week in the history of the cattle market when the supply of native beef steers was so liberal. Offerings every day in the week were exceptionally large, showing that the movement to market was no spasmodic accident. Both on Monday and Wednesday receipts exceeded thirty-three thousand head, a circumstance that never occurred before, for during the time when the big weeks were recorded in the past, one or the other of these days was comparatively light. Local dealers are at a loss to account for this sudden bulge in receipts. There was no logical reason for it except that the cattle were in the country and that feeders were tired of shovelling into them high-priced corn."

Frequently during this last season we have had receipts of from ninety thousand to ninety-five thousand head a week in Chicago. The total receipts for the year run up to a good deal over three million, five hundred thousand head of cattle, and eight million, five hundred thousand head of hogs. Under normal conditions, with our own country and Great Britain to supply, the market of Chicago can take care of fifty-five to sixty thousand head of cattle. The rest are at the mercy of the buyers. So that there must be some way found by which this surplus can rapidly be disposed of. Otherwise all of our learned disquisitions upon agriculture and various classes of live stock are good for nothing.

The Live Stock Association at Denver was aware that a few years ago the German government had taken up in a retaliatory spirit the subject of their tariff schedules. It was worked out in their slow way; they were several years preparing the tariff schedule, and then they arranged to have it go into effect nearly two years after it was prepared. It goes into effect on the first day of March of this year. Under that tariff schedule we are absolutely wiped out of the German market. The changes in the tariff rates under the new schedule are from 80% to 200% higher than they have ever been before. We have already been wiped out of the French market. We have no trade with Portugal or Spain; very little indeed with Italy; very little with Belgium, and on the first of March next we will be out of the German market.

We have an enormous surplus to dispose of. We cannot feed all our cattle to our daughters in any shape or form. We can supply those hungry people there with all that they need, but at the demand of the agrarian element, the frontiers are to be closed to us. Let us look at the conditions which had existed for some time on the continent of Europe while we had our superabundance. Let us see what is their condition. Here is a statement which was prepared by the best authority on the world's supply of meats, I think, in this country.

EUROPE'S SUPPLY OF MEATS.

"Great Britain's flocks and herds have, if anything, gone back, while the population has gone ahead. The flocks and herds of Ireland have virtually been stationary for a quarter of a century. Twenty-five years ago France had one hundred and eighty-eight head of live stock per one thousand acres of her area. She now has one hundred and sixty-four head, or a dead loss of twenty-four head per one thousand acres of the country. Denmark had one hundred and ninety-seven head per one thousand acres then, and one hundred and fifteen head now, or a loss of eighty-two head per one thousand acres. Germany, a quarter of a century ago, had three times as many sheep per head of population as now. The Fatherland now has fewer cattle per capita of the people than then. Holland and Switzerland have only half as many sheep per head of population now, as they had two and one-half decades ago, and Belgium only a fourth as many. In these countries during that time the flocks of sheep alone have actually decreased from one hundred and four million to seventy-five million, showing an actual loss of 28%. At the same time the increase in the population was 25%, thus making the comparative loss much greater."

He further says: "The relative scarcity of meat upon the continent is readily seen by the excessively high prices paid there for all carcass meats. These prices average 100% higher wholesale than similar meats sell for in the United States, and 30% to 50% higher than they do in England, even in the face of the facts that labor and other continental items of production are cheaper than in either Great Britain or the United States. The growing scarcity of the world's edible meats is produced by the two causes previously named; the faster increase of the human race in proportion to the increase of abattoir animals, and the improved conditions of the working classes, which causes a greater per capita consumption of meats than existed two decades ago."

Recently there was a large meeting held in Berlin with a view of remonstrating with the government as to this artificial scarcity that has been recently produced. "The feature of the meeting, which will perhaps justify this brief review of its proceedings, is the definite and authoritative exhibit which was made of the degree to which the market value of meat producing animals has been increased in Germany by the influence of the meat inspection laws. Beginning with the statement that in other European countries the price of meats and domestic animals is not now unusually high, the memorial goes on to declare that according to the reports of the Imperial Bureau of Statistics—certainly a conservative and unbiased authority—during the winter months of 1900, the average wholesale price of live hogs was twenty-one dollars and forty-two cents per two hundred and twenty pounds, whereas they are now scarce and difficult to obtain at thirty dollars and ninety-four cents, or more than fourteen cents per pound avoirdupois. Fat oxen, which cost on an average in the period from January to March, 1900, twenty-four dollars per two hundred and twenty pounds, are now scarce and of inferior quality at an average cost of thirty-two dollars and seventy-five cents, or about fifteen cents live weight per pound avoirdupois."

I read that merely to give you an idea of the condition in the two countries. Here a "glut," cattle selling at unprofitable prices and with all of our talked-of prosperity, which has been remarkable, it is strange to say that the cattlemen in the last three years have absolutely had none of it. The sheepman has been prosperous, and by the teaching of the professor here and other men of that class in the northwestern states they have produced enormous quantities of valuable mutton, and they have been prosperous the last two years beyond question. But the cattlemen and the hogmen of the great middle states have not shared in that prosperity. We know that when you come to sell your cattle at three and one-half to four cents in Chicago, there is no real profit in it. Occasionally, of course, corn-fed steers will bring six cents. But that is the exception and that does not mean any extravagant portion. I have fed a few steers myself and I know that no farmer will grow rich in a corn country worth one hundred dollars an acre, at such a price. It is a great business question for us to settle. How are we going to supply this great deficiency? What is the difficulty in the way? Why should we not be shipping hundreds of thousands of our cattle to Germany?

It is a very old story. The German embassador in Washington,. if you would call on him, would simply say to you: "Well, we will be perfectly willing to trade with you, to buy of you if you will buy of us, if you will trade with us." Now, why should that be the case? "Why," he will say, "we sold you last year about one hundred million dollars' worth, and we bought of you two hundred and twelve million dollars' worth. We cannot go on eternally paying you a balance of one hundred million dollars a year in gold." That would perhaps be desirable if we wanted to accumulate gold, but we want to sell as well as buy, so that I want to present to you some subjects for you to think about with regard to this matter.

I am always impressed, when I find myself face to face with an Ohio audience, with a desire to go off and take up the wonderful past which Ohio has had. There is nothing in the whole history of the country which to me is so interesting as the period which witnessed the subjugation of this great state of yours. First the English, the French and the Indian and then the Colonist joined in. It was a battleground from the lakes to the Ohio River. It is the most romantic chapter in the conquest of civilization which we have, and which peopled this country with a wonderfully sturdy race. The influence of that stock has gone on down, and perhaps no state, with one exception, has furnished the country with the great men—virile, strong, intelligent, patriotic men—who, in a great majority of cases, have sprung from the farms of this great state of yours. It is a wonderful subject, and it tempts me often, as I say, when I am face to face with Ohio people, to go off and philosophize and talk about it. I only want now to allude to one man that Ohio gave to this nation, who was the most profound student of this great economic question we have ever had, who wrote his name largely across the great affairs of this country, especially concerning this subject of our foreign relations and our political affairs and who left as a dying message to the American people a speech which will be immortal. I allude, of course, to William McKinley. (Great applause.)

Mr. McKinley—who understood better than anyone else that we have any knowledge of, this great subject of international trade relations—at Buffalo, when the angel of death seemed to be hovering over him, and when, according to Socrates, the spirit of prophesy descends upon every man, said the time had come when we could no longer occupy an exclusive position; that we must buy of others as we expect them to buy of us, and that our relations must be adjusted upon that kind of a basis. It is a matter of every day common life experience that we will not buy of our neighbor or trade with him unless he trades with us.

Now, the great problem which is confronting this country is how to adjust our relations with the rest of the world. The rest of the world has been prosperous. We are not the only people. There never was such prosperity in Great Britain as has existed in the last six or eight years. Germany and France are prosperous. They are all prosperous just as we have been. There seems to have been a tide in the affairs of men that has carried us all onward and upward. We are now face to face with conditions which are looming right up over the horizon. You may not have thought of them, many of you, but they have got to be considered. Some of our friends object to any action upon these things, saying: "We have such wonderful prosperity, why take up questions of this kind?" Why, isn't the day of your strength and prosperity the time when you should prepare for adversity? Don't you prepare for war in time of peace? Or do you emulate the example of the man down in Arkansas, who would not mend his roof when the sun was shining because he didn't need it, and couldn't do it when it was raining? That is not the attitude for an intelligent people.

Now, with regard to this question of what we could do if we had better relations with those great continental countries in our live stock interests:

Germany imported last year three hundred and five thousand, three hundred and forty-six head of cattle altogether from Austria, Denmark and Switzerland—a slight falling off as compared with the two previous years. Owing to the recent crop failure, fodder values were so extremely high that farmers and feeders were obliged to rush their cattle to market to such an extent that today there are practically no native German beef cattle in the country. Our export of live cattle to Great Britain for last year amounted to three hundred and eighty-seven thousand, four hundred and sixty-seven head; and while we may not perhaps hope to attain these figures with respect to shipments to Germany, in the event of treaty arrangements being effected, nor would we expect to supply similar quality, yet that market would easily take from two thousand, five hundred to three thousand, five hundred per week, and of the quality so desirable for the American farmer and feeder to find a market for; that is to say, range cattle. Experience of those conversant with German requirements vouches for the fulfillment of this prophesy. The opening of a market like this is the only solution of the price problem, (the reason for the demand for comparatively inferior cattle in Germany is explained by the fact that the wage earner is not paid upon so high a scale as in Great Britain, and is obliged to buy quality according to his means). And just at that point let me say that I had a conversation with one of the greatest exporters of cattle, and he said if the proper arrangement had been made with France, if the treaty of reciprocity with France which was negotiated by Mr. Kasson had been ratified, that he would have shipped a thousand head of bulls a week to France; he would have made a specialty of that particular kind of meat, because he said the French market demands strong coarse boiling meat—they do not broil, they do not roast, but they boil and stew meats, and he would have confined his exportation to bulls and stags, the coarsest meat in our market. So with each nation, each has its special requirements and habits in the way of meat.

Were it not for the fact that during the past five years an unusual condition prevailed throughout the world (i. e., the Boer war from 1899 to 1902, the Boxer trouble in China, 1900, and the Russo-Japanese war, 1902 to 1905), the great bulk of the kind of cattle referred to above could not have under any circumstances found a market in the states at any of the packing points except at ruinous prices. These disturbances made an unusual demand for canned and pickled beef, used as army supplies; and thus it was that these light cattle went into consumption in tins and barrels. Figures from the statistical abstract will bear out the truth of this statement.

Never was the time so opportune for effecting a commercial treaty with our German friends as the present. The situation in the empire is most critical, the country being involved in a meat famine, the proportions of which have astounded the whole world; records show us that in one year twelve thousand horses were slaughtered in Berlin alone, for food, and seventy-nine thousand were consumed all told in Prussia for the same year. These horses were not young animals, but old harness-ridden beasts, in practically all cases discarded tramway horses.

Misfortune makes us wondrous kind, and Germany in her distress proffers a most kindly hand which we must not fail to grasp at this time, for out of her misfortune great benefits will come to us if we heed her. She is a mighty power, and naturally proud, and unless we treat with her in an equitable spirit she would prefer to suffer rather than be humiliated; so it behooves the United States Government to act fairly, and that just now. This is a matter of vital importance to the agricultural interests in every part of the United States, for with this, and the other continental European markets which invariably look to Germany as a leader in affairs of this kind and imitate her policies, the time will not be far off when the cattle interests of this country will experience a situation never heretofore thought possible.

As the table of exports of this class of products shows, Germany, since 1900, has taken practically none of our canned meats. The imports of that year represent the products suitable for canning, from over one hundred thousand range cattle (equivalent to about two thousand head per week), and to what extent this canned meat trade could be developed in the German market, if the embargo could be raised, and which will be raised if the proper co-operation of all the agricultural and allied interests can be made a certainty, and the tremendous influence which such interests can wield could be brought to bear upon Congress to insist upon its acting as it should in this matter, would astound those unaccustomed to the possibilities of such trade. We should easily triple the business. This is not idle conjecture, but the consensus of opinion of practical business men conversant with the situation in all its details. One can plainly understand what such an increase means; just so many more cattle demanded by the canning factories, and naturally an increased demand means increased values.

It will be noticed that the table, while it shows a decided improvement in canned meats during the past six years as compared with the years 1898 and 1899, notwithstanding the fact that Germany imported but a nominal quantity during the last five years, shows that these increases occurred only with the countries which were directly involved in war, or which were interested in furnishing supplies to them, and therefore, it was not a natural increase incident to trade. This is pointed out in order that the casual investigator, who looks over these statistics and finds a continued increase in exports during the last six years, is not misled in drawing his conclusions as to Germany's importance as a market for our canned meats.

We simply must have this market. And woe betide the range cattle interests of this country if we fail to secure it.

As the table shows, Germany is a heavy buyer at this moment of our barreled beef. She takes the products suitable for the purpose of about fifty thousand head of cattle annually, in casks, and of the kind described as "range cattle." Now, unless satisfactory conclusions are reached with her before March 1, 1906, barreled beef, as well as all other packing house products, will be practically prohibited from entering the country, owing to the highly increased tariff rates to be inaugurated at that time.

We must also consider Germany's imports of our pork products. There has been since 1898 a decided falling off as the following figures will show: Their import of fresh pork in 1898 was three million, sixty-seven thousand, one hundred pounds; in 1904 it amounted to one hundred and forty-nine thousand, one hundred and sixty pounds. Hams and shoulders in 1898 were nine million, five hundred and fifty-five thousand, seven hundred pounds; in 1904 they amounted to one hundred and eighty-six thousand, one hundred and twenty pounds. Bacon in 1898 was fifty-seven million, four hundred and twenty-three thousand, and seventy pounds; in 1904 it amounted to four million, one hundred and nineteen thousand, nine hundred and forty pounds. The total imports of all meats fell from one hundred and three million, nine hundred and thirty-four thousand, seven hundred pounds in 1898 to nine million, five hundred and fifty-two thousand, four hundred pounds in 1904.

Now, that is the situation as shown by governmental statistics, and we are losing ground on all our minor manufactures, and the coming year there will be an early cessation of business with this great German empire, which is our second best customer. Great Britain takes our products freely, but Germany is our second best customer. She will shut the doors, and yet she is today in Washington asking us in some way to enter into a fair commercial arrangement.

You remember the president's first message. He had kept alive the Kasson treaties that were negotiated by Mr. McKinley, until they were rejected by the Senate. He would today willingly introduce other treaties of the same kind which would help our agricultural interests, but he will not do it until the Senate signifies its willingness to give fair consideration to such treaty. If the Kasson treaty could have been entered into under Mr. McKinley, it would have been worth forty million dollars to the agricultural interests of the United States. Why was it rejected? There were some goods manufactured that had 85% protection, and the manufacturers were asked to give up a small part of that protection. They absolutely refused to do it; and there were some brass jewelry manufacturers who had about 65% protection and they were asked to give up about 10% of that. They refused, and as Mr. Root, secretary of state, said to me the other day, they came to Washington and they fairly screamed at the idea of being made to give up any of the protection they had. You will remember that the Dingley law is the last expression of our fiscal policy, and it has been practically assented to by all parties. When it was negotiated there were some objections, as there would be to any proposed tariff bill, but with section four held out it was regarded as a satisfactory bill to Democrats and Republicans alike. Why? Because it had been made purposely about 20% higher than was absolutely necessary for legitimate purposes. The bill provided in section four that any time within two years after the passage of the act, through a treaty negotiated by us with foreign countries, he might concede up to the 20% mentioned in the schedule. We all believed—Mr. McKinley believed—that that was the honest purpose of the Congress of the United States; that that represented the honest sentiment of the people of the United States, and he immediately proceeded to negotiate twelve great treaties with different countries upon that basis, rarely ever conceding as much as the 20%. In the case of France there was only one schedule asked to give up as much as the 20%. Most of them gave up 5 to 8 or 10%.

Now then, Mr. Root is anxious today to negotiate a treaty with Germany, and I believe the President would be glad to negotiate treaties of that kind, but he has said distinctly and positively that until the Senate has shown a sign of willingness that it will fairly treat reciprocal treaties of this kind, such as were negotiated by Mr. McKinley, he will not send anything to the Senate.

It is a great big question up to the Americans, and particularly the farmers and live stock men of this country. Are you going to sit back and do nothing, or are you going to back up the President and Secretary Root in their efforts to put our products into the markets of the world? That is the question that I want you gentlemen here to consider, and to ask yourselves whether it is a question you are willing to stand by. We all admit the protective tariff theory. There is no such thing in this country as a free-trader. The great men of this country stand for "a square deal;" they want to protect American labor. They want a differential to exist all the time which will equalize the products of this labor in this country with that in any other country. But here we are with the products of this great industry; iron and steel manufacturers and manufactured cotton and a few things of that kind are protected beyond the dreams of avarice, and are flooding the markets of the world, and yet they say we must not trade with the rest of the world, we must not find a market for our products. They take cotton free everywhere because it cannot be produced in the same class anywhere else, but the cotton seed oil men are distressed just as we are. This is an urgent situation. It is one that wants to be considered in the light of common sense, with regard to conditions which exist today all over the world. It has been demonstrated time and time again that our manufacturers will send goods all over the world and sell them often for much less than they are sold for at home. In 1892 I visited in northern England and Scotland, and I found American hatchets and pitchforks and everything for sale cheaper than I could buy them in Kansas City. I went upon the Royal Agricultural show ground, at Warwick, and I could find every kind of American agricultural implement cheaper than I could buy them in Kansas City. In 1903 I was over there again and found that condition had extended further and further. I found American barbed wire for sale in Liverpool at two dollars and fifty cents when it was four dollars and twenty-five cents in Kansas City.

Now, just a word further about our exports. People who examine the statistical abstract and the various reports of the government, say our imports are increasing every year, and we cannot help but be prosperous. We exported last year one billion, five hundred million dollars in round numbers, including an enormous quantity of manufactures. That is all true, but as I say, there has been a reason for it. We have lost trade with Continental Europe. Our exports to Europe have diminished; our exports to South America are practically at a stand-still; and but for the enormous increase of exports to the Orient we would have been away behind, and those exports are caused by conditions that are temporary in their character.

I beg your indulgence while I give a little statement of the condition of our export trade generally. Those who have assumed to drag the whole country by the heels into a possible trade war with Europe, ignoring the reciprocity preventive in the Dingley law, will probably point to our increase of exports for the fiscal year 1905 over 1904 as proof that our foreign trade is all right, that there are no screws loose, and that there is not a cloud on the commercial horizon portending any trouble. They will point to a total export gain of fifty seven million, seven hundred thousand dollars for the past fiscal year, and they will assume and claim that that proves their case. Let us take all of the facts. Our gain in Asiatic trade—largely because of the Russian war—was sixty-seven million, five hundred thousand dollars, or nearly ten million dollars more than our increase with the world. The trouble is that we lost in our trade with Europe thirty-six million, four hundred and fifteen thousand dollars. Our loss with Africa was five million, seven hundred thousand dollars. We had a gain in North America of twenty-five million, seven hundred thousand dollars, and in South America of six million, four hundred and fifty thousand dollars. But for Asia we would have had to put up with a ten-million-dollar loss of trade with the world, and we should not overlook the fact that our increase with Asia is abnormal, and not to be relied upon after the war, and especially not after Japan and China get to work to capture and control the trade of the Orient.

It is all well enough to keep our commercial eye glued to the Orient, but it is more important that we do not overlook Europe. There we find our reliable consumers and the money that keeps our surplus in motion, which in turn prevents stagnation and low prices.

That there is trouble somewhere with our foreign trade is indicated by other statistics issued by the Department of Commerce, for the year ending June 30, 1905. Take some of its figures, and we find that while the total increase of domestic exports (fifty-six million, four hundred and fifteen thousand dollars) standing alone will be accepted by some, and claimed by others as entirely satisfactory, especially when used in connection with a gain of ninety-one million dollars in exports of manufactures. The bare publication of these figures fails to tell the whole story. They will probably be used freely, however, to show that there is nothing in our trade relations calling for reciprocity or trade agreements; but, as has been intimated, that is a very misleading inference drawn from only a part of the whole case. The fact is that of the fifty-six million, four hundred and fifteen thousand dollars gain in total exports, fifty-four million dollars was in three items only, as follows: Iron and steel, twenty-two million, seven hundred thousand dollars; cotton manufactures, twenty-seven million, three hundred thousand dollars; leather, four million dollars. On those three great, highly protected interests we have gained; but, on the other hand, what fate met some of our other manufactures? Our agricultural implement exports fell off two million dollars; our car, carriage and vehicle exports fell off three hundred and twenty-five thousand dollars; our scientific instruments exports fell off one hundred and twenty-five thousand dollars; our marble and stone exports fell off three hundred and ten thousand dollars; our musical instruments exports fell off eighty thousand dollars; our paraffine and wax exports fell off one million dollars; our lumber manufactures exports fell off four million, three hundred thousand dollars. A loss in manufactured exports of eight million, nine hundred and fifty thousand dollars. Our exports of agricultural products fell off thirty-two million, five hundred and seventy thousand dollars, showing a loss of forty-one million five hundred and twenty thousand dollars. Allowing for some slight gains, the net loss to agriculture and certain lines of manufacture was about forty million dollars.

We submit that a loss of nearly nine million dollars to so many of our lesser but very important manufactures fails to indicate a healthy trade condition, great as the gain may have been to an overprotected few. The real question is, Was the export trade of the great mass of our manufactures prosperous? The figures show the contrary, while our farmers will find but little consolation in a loss of thirty-three million dollars. It is likewise true that the ostensible gain in manufactured products, ninety-one million dollars, of itself is misleading in another respect. Including in the gain of manufactures is found bar and pig copper, the increase of which amounted to twenty-nine million dollars. Deduct that and the increase of exports of manufactures was only sixty-two million dollars, consisting principally, as has been said, of three items, so heavily protected that their surplus can be forced on foreign markets at cost. The condition then as far as agriculture, and many other classes also of our manufactures are concerned, was not satisfactory. Agricultural exports suffered severely. The export loss to Europe is the alarming feature, losing with Germany alone twenty million, two hundred and eighty thousand dollars.

Now, ladies and gentlemen, this is a dry subject. It is invested with a great mass of detail, but we people out West are enormously interested. This thing began at Denver last January among the cattlemen, and it is spreading all over those states, and we hope that you people of Ohio, with the enormous influence you have in Washington, will endeavor to bring about what the leaders of the nation desire to see brought about, a condition by which we will not be smothered by our own surplus product. (Great applause.)

The President: The next address on our program is by Mr. Humphrey Jones on the

"PROFITABLE PRODUCTION OF BEEF UPON THE FARM."

Mr. Chairman, Ladies and Gentlemen:—It would seem, in view of what we have just been listening to (referring to the address of ex-United States

Senator W. A. Harris, of Chicago, on the subject "Reciprocity as it applies to our live stock interests"), that it would be quite ill-advised to say anything along the line of increasing the production of beef cattle. If we are to be shut out and deprived of the markets that we have heretofore been enjoying, the probabilities are that the prices will be considerably reduced rather than increased, and we should be looking around to decrease that production and divert our attention to some other branch of farming or live stock raising.

There is one view, however, in which it is probably profitable to consider the production of beef on the farm whether prices be profitable and good or whether we are to have low prices. Generally no great evil exists for any considerable length of time without a remedy being found for it, but if this evil of low prices is to come upon us and remain, the next thing to consider is how the cost of production can be reduced so as to leave some margin of profit notwithstanding the reduced prices.

You have been told from this platform this afternoon that the production of live stock is the basis of all successful farming. That is a statement which American farmers, in my judgment, do not realize as fully as they ought to. It is one that is familiar to us all, but it comes in at one ear and goes out at the other. Twenty-five years ago in Ohio, and at the present time a little further west, it was and is no uncommon thing to hear the remark that "you cannot wear out these lands." We are familiar with the statements of men who will cite instances of land tilled twenty-five or thirty years and still producing good crops. A few men still argue today that it is impossible to exhaust their lands here in Ohio. They do not realize the impossibility of continuous farming of these lands without some effort being made to keep up their fertility. The means, above all others, that the experience of farmers, not only in this country but the world over, has shown to be the best adapted for maintaining and increasing the fertility of land, is the keeping and growing of live stock thereon. The man who simply goes on a piece of land and farms it and sells the crop and hauls it off to market, is not a farmer in any sense of the term. He is simply a "miner." He is simply going into the store of fertility he finds there and taking it away each year and transferring it into money. That sort of a man is not doing anything by his operations that will make that farm, or the community in which he lives, any better by reason of his having lived in it. The land will be poorer when he passes away, and there will be less there for the future generations. The man who is fortunate enough to own good agricultural land should handle it in such a way that it will be better when it is passed to those who come after him.

I do not mean to urge that we ought all to go into the cattle business. Professor Shaw has called our attention to the raising and fattening of sheep on our lands, and, in his judgment, that is one of the best means of keeping up the fertility. It is better for men who are inclined, or whose farms are adapted to the sheep business, to engage in it; but some kind of live stock should be kept upon every farm.

Now, there are certain essentials, in my judgment, with reference to the production of beef on the farm necessary for the success of the man who wants to devote his energies in that direction. The first essential is that you must have a good corn and a good grass farm, land that will produce corn and clover; and in this section of the country, when you have that kind of a farm you have one that will produce almost anything else. It will produce oats and rye and alfalfa and other forage crops and grasses desirable to use in connection with the production of live stock.

And the next essential, and that is absolute, is that you must buy the cattle that you are going to handle upon this land at a price that will render it possible to make their handling and feeding profitable. There is a common saying among cattlemen that "you cannot buy good cattle too high." That is a mistake. The rule should be rather to buy good cattle at a fair price or buy common cattle at a very low price; and there is often as much profit in handling common cattle at the right kind of a price as in handling good cattle I have not much sympathy with the idea that is advocated by some keeping cows of the beef breeds on the farm, and raising calves. I think it is impracticable for us to do that. We must buy our feeding cattle either as calves, yearlings or two-year-olds.

Heretofore the common practice and tendency has been to handle the older cattle, two and three-year-olds. I have bought such in the West, in the hilly sections of our own state, in the eastern portions of Kentucky and wherever I could find places where they could grow them cheaper up to that age than we could produce them on the farm, and have fed them oftentimes with little or no profit. There is scarcely ever any large profit in the handling of these cattle.

Now, after you have your farm and your cattle, then the next thing is the raising, handling and feeding of the crops in such a way as will insure you a fair margin of profit between the first cost and the selling price of your cattle. This involves first a determination as to the kind of crops that should be raised. They should be those that are the best adapted to the growing and finishing of the particular kind of cattle that you are handling. If a man is handling two or three-year-old cattle he should grow more corn; he needs more corn than if he is handling younger cattle. Corn is the "king of crops" in this country. Next to that, with all due deference to our friend, Professor Shaw, grass is the most important, and I mean by that the permanent pastures; not permanent in the sense that they are never changed from grass to corn, but pastures that are grazed for a year or two or three.

The great problem is the labor question, as we have been told this afternoon. The difficulty we all encounter in the handling of cattle is to get these feeds produced and get them converted into beef without too great an expenditure for labor. Now, as corn is the king of foods for cattle, the most important question to be considered is how to most economically convert that crop into beef. The old fashion of feeding cattle, which many follow yet today and which we ourselves practiced a few years ago, was to grow the corn, cut and shock it, let it stand in the field during the winter, and feed it out in lots, or in a woods, if we had it—and in some respects that is the best place to feed and in others the worst—or we would husk the corn out of the shock, crib the corn and feed the fodder out to the cattle, and feed the corn, either in the ear, or grind it. Now, when you stop to figure a little, you will find that by the old method of handling it, you have put into that corn crop, after it is raised, about four times what it cost to raise it. After a man has his farm equipped with teams and tools, which should be charged and treated as so much of his capital stock and a certain per cent. allowed each year for depreciation, and not charged for at so much per day, the labor element in the production of the corn crop is not more than two dollars per acre. We have raised several hundred acres of corn per annum for several years and the usual price we pay is one dollar and fifty cents per acre for the labor of tending, and the blacksmith's bills and repairs probably cost fifty cents per acre more, so that it does not cost us more than two dollars per acre actual cash to raise the corn crop. When you cut the crop and put it in shock, there is a labor expense of one dollar and fifty cents or two dollars per acre; for husking it, four or five cents a bushel, which if the crop makes fifty to sixty bushels per acre is two dollars to two dollars and fifty cents per acre; fifty cents for cribbing, an acre, and you have added at least four dollars an acre in actual money you have paid out for labor, not counting the use of teams, simply to put your corn in the crib and the fodder in the field. Hauling the fodder out of the field and feeding it to the cattle and hauling the corn from the crib and feeding or marketing it involves an expense of at least another dollar per acre, so you have an expense of at least five dollars an acre on the corn crop after you have raised it, when it has cost you only one dollar and fifty cents to two dollars an acre actual outlay for labor to produce it.

Now, if there is some way you can get the corn crop into the cattle without that enormous expense you will lessen the cost of producing your beef. We have been endeavoring to find some way by which this can be done, and have devoted for some years our land exclusively to the production of beef and pork. There has not been a pound of grain of any kind sold off the farm for years and we do not propose to sell any in the future. We are trying to find some means of using this king of crops, corn, so as to reach the maximum results in converting it into beef and pork.

We have in the first place endeavored to use this crop largely in the silo. I know the common prejudice that exists against the silo. I do not advocate the use of silos by every man by any means. It is only the man who will use it in the production of beef as it should be used that should have one. The man who undertakes to use silage and nothing else will be disappointed. We have used the silo for the storing of a considerable portion of our corn crop. We put it into the silo at the stage where it has its highest feed value, the period when it is first ready to cut. The actual cash outlay with us of filling our silos has not generally been over thirty-five cents per ton, I mean not counting the use of our teams and implements. We have our teams, wagons, etc., on the farm and must have them there to raise the corn and for other purposes. Instead of spending money cutting the corn and putting it in shock, husking, etc., we use that same money for labor to put a portion of the crop into the silo. You can do that, I say, at less cost than is involved in handling the corn crop in the old way. In addition to that we get pretty nearly the full feed value of the corn crop. We all know that the fodder on the average Ohio farm, after it has stood in the field a considerable time is not worth the cost of cutting the corn, and the best evidence of that fact is that you can go out at any time almost and buy this fodder at from five to ten cents a shock, being one dollar to two dollars an acre for it. In some sections it may be different, but I am speaking of those sections where stock are fed on a considerable scale. We have all seen these shocks of fodder in the spring go up in flames, the farmer not realizing anything for it. We get from that fodder when it is put in the silo, I say, its full feeding value, which experiments as well as practical tests have demonstrated is pretty close to one-half of the total value of the corn plant.

Another plan we have adopted in the handling of the corn crop is, as far as possible, to feed it down on the ground. If there is some way that the corn crop can without much further expense be converted into pork or beef after we have spent for labor one dollar and fifty cents or two dollars an acre in raising it, you have materially reduced the cost of your beef. Hence we have adopted the method of turning the cattle into the fields and feeding the corn on the ground. That practically costs us nothing for labor. We fence off portions of a field at a time and let the cattle run thereon till they get all they can get profitably from it; then they are followed by hogs and they clean up the balance. If stock hogs are permitted to follow and run on the fields through the winter there is practically no waste. And another matter that is of more importance and of greater consideration than the saving of four or five dollars per acre in the cost of handling, is that you get every particle of what was grown upon the field back on the land, so that while you are saving in the cost of production of your beef, you are also conserving the fertility of your land; you are also saving in the expense of handling the manure, and, as I say, there is no material loss of the corn crop. The man who feeds his crops and does not put them back on his fields is no better off than the man who sells his crops, so far as keeping up the fertility of his farm is concerned.

Another means we have adopted, which I have found results in great saving, is the use of this crop of which Professor Shaw speaks so highly, the rye crop, one of the most valuable crops produced on the Ohio farm. The rye is pastured during the fall and winter with hogs. There is nothing that equals it as a winter pasture for hogs. As quick as it can be done in the spring cattle are turned on the rye fields. After all that can be taken from it in that way has been obtained, the rest is permitted to go to seed. As quick as it reaches maturity the hogs are turned on and they gather the grain. You get a fine stand of timothy and clover. After the hogs have run there for a few weeks you have in the fall a great growth of volunteer rye and it is ready to turn the cattle back and you have a fine lot of fall pasture of rye, timothy and clover, and the labor cost has been only for the sowing of the rye and grass seed, probably twenty-five cents an acre. Then more important than that is the fact that you have not taken one pound of any crop off of that land during the year and you have had a profit from its use. You have not stripped it of from fifty to sixty bushels of corn per acre. Then in addition to that you have a better stand of grass than it is possible to get in any other way, and the next year you have a fine pasture of volunteer rye, timothy and clover, the three together yielding more than it is possible to get with almost any other kind of grass.

Some men may say this method is too wasteful. Well, it does look wasteful in one sense, but it is not wasteful at all. It is economical in my judgment, in the highest degree. It is economizing in two or three ways, and it is economizing in the first essential, the reduction of the expense, in the labor account, that eats up all the profit in the ordinary farming operation. It cuts a large part of that out.

We raise, also, in order to keep this land going in the production of beef and cattle, large areas of clover, and in connection with the clover we sow alfalfa. We have been doing that for years and have had good results. We often mix clover and alfalfa half and half, and we have found as a rule that a larger percentage of the alfalfa plants appear to survive than of the clover. There are great advantages in mixing the alfalfa with the clover, especially if you sow some timothy along with it. If it is left over to the second year, you will have a pasture that will be equal to the first year of alfalfa and clover and you are getting your land adapted to alfalfa. I know that all the lands in Ohio are not adapted to the raising of alfalfa, but the greater portion of our corn lands are, if they are well drained and kept in a proper state of fertility. We raise large crops of alfalfa as an exclusive crop. We have been endeavoring to extend our area of alfalfa as much as possible, and we use these crops of alfalfa in connection with the corn silage and some times for pasture.

A matter I should have stated in connection with the corn silage is the soy bean crop. The soy bean is like alfalfa, it don't want to be put upon poor, thin land, but upon good, rich land. You can raise nearly as much tonnage per acre with the proper variety of soy beans as you can of corn. The soy bean is the richest stock feed grown. When grown to produce the maximum amount of grain it is doubtless much richer in protein than alfalfa. Corn is very deficient in protein. We therefore always aim to raise enough soy beans to mix with the corn in the silo, so as to as nearly as possible balance the corn ration. While corn is the king of crops, and is the great feed crop of this country, yet alfalfa and soy beans are worth their weight in ear corn when mixed in proper proportions with corn. They then have a food value equal to the same weight of ear corn. We have found that by mixing the soy bean with corn, in about the proportion of 40% of soy beans to 60% of corn, that we get a ration that is so well adapted to the requirements of young cattle that upon that ration alone, with clover or alfalfa hay and a pound or two per head per day of concentrates, we can get gains of fifty to sixty pounds per month. You take a steer two or three years old that gains fifty pounds a month, for a six months period, on full feed of shock corn, and he is a good feeder. Our ensilage and hay ration will make good, well bred young cattle gain fifty pounds a month during the entire winter, provided they have proper shelter.

Now, why is this so? This feed does not analyze so as to justify that result, but the answer from experience is this: Take good timothy hay and feed young cattle on it during the winter and they get thin, but wait until the grass comes in the spring, and turn them out on timothy grass, which as well as timothy hay is very deficient in protein and is not by any means a balanced ration, and in a week or two you will find the cattle shedding off and taking on an appearance of thrift. And what is the explanation of it? Not that the cattle are getting a different class of feed, so far as chemical analysis is concerned, because the feed that they were getting in the dry hay has substantially the same elements that are in the grass, but the difference is due entirely to the condition the food is in. The grass is green and succulent. When you have this grass and have it as nature has provided it—grass is nature's food for animals, and she generally balances it up so as to make it a proper food for their best development—with that succulence that nature puts into it, you get the highest development of which the animal is capable.

Now, when you have the feed in the silo and in zero weather can take out the warm fresh succulent ensilage and throw that down to the cattle, you can expect just the same kind of gains, if you house them properly, as if they were running on the best grass in the summer time.

With a subject of this kind, ladies and gentlemen, where one who has given it any attention, a single feature of it would occupy all the time that any audience should be asked to listen to a speaker. This matter of the silo alone, or the feeding of alfalfa, the soy beans or the handling of the corn crop, would each one furnish a topic for an hour's talk.

I must now conclude, as I am reminded by the president that there will not be time to complete the day's program.

But I must not omit to mention two other very important crops which we use in the production of beef, the oats and barley crops. We use oats and barley as a nurse crop for the alfalfa and clover, cutting a large part thereof for hay. This makes a feed which the beef cattle will consume entirely, and in my judgment it will produce more food in that form than in any other manner it can be handled. Barley we generally cut and thresh but sometimes cut for hay, and I have been greatly surprised at the fine character of the hay barley will make. In handling these lands we keep them rotated from corn to oats, barley, rye, soy beans, clover, alfalfa and other grasses, and feed the cattle on the fields as much as possible, and manure that is made is saved and placed upon the fields.

In winter the cattle are in barns, sheds and lots with cement floors and there is no waste of manure. We take out the manure from week to week and so receive its full value. There is absolutely no loss of fertility from the farm, except the small per cent. which the animals themselves carry off as beef. We have not been surprised at the result. It has been what we expected. We have taken lands which were deemed to have been worn out and which were bought for a song, as lands are now selling, and in eight or ten years have put them in such condition under this system, that the crops we produce on them will compare very favorably, if not excel the crops upon the farms of any of our neighbors. (Great applause.)

The President: There are some committees to report. We will now have the report of the committee on resolutions if it is ready to report?

Mr. E. H. Cushman, Chairman Committee on Credentials: Mr. President, ladies and gentlemen: Your committee feels that it has not been possible, in the short time it has had, to prepare and bring in a report that covers all the subjects that should be covered and in as good phraseology as they should be put. It is impossible for a committee of this kind to properly formulate resolutions when the members practically have no time to consult together and properly prepare them. Consequently we hope you will be charitable in your criticism of this report.

Report of the Committee on Resolutions:

Resolved, That it is the sense of this convention:

First—That the tax be maintained on oleomargarine; and that civil service be extended to all the departments of government; that we favor the regulation of railroad rates by the Interstate Commerce Commission; and encouragement to commerce by national legislation; that reciprocity be extended wherever better foreign market conditions can be stimulated, for the products of the farm without injury to our home manufacturing industries. That we emphatically favor laws that will more nearly exclude undesirable acquisitions to citizenship to this country, and foster and encourage all that will prove a blessing to the best interests, both in morals and business. That we favor the good roads movement and two-cent per mile railroad rate legislation.

Second—That we favor the payment of county officials by well regulated salaries commensurate with the value of good service, and all other laws that will tend to relieve the taxpayers from unnecessary burdens, consistent with the best interests of the same.

Third—We favor a more liberal appropriation from the legislature to carry on the good work undertaken by the management of the Ohio State University, Ohio Agricultural Experiment Station and the State Board of Agriculture. Especially do we recommend that the latter be provided with the means to enlarge and encourage the good work undertaken by the farmers' institutes.

Fourth—That it is the sense of this convention that every possible influence be brought to bear to bring nature study and agricultural education to our children in our rural schools.

Fifth—That we regard the duty of Congress to be imperative in the revival in some form of the principles of reciprocal trade relations as enunciated in section four of the Dingley act. We believe that the doctrine enunciated by Mr. McKinley in his Buffalo speech is absolutely essential to the welfare of the country. We believe that the principles of section four of the Dingley act, if enacted into a law would constitute a maximum and minimum tariff which should be put into force by the executive without further legislation, and we request our representatives in Congress to act promptly before irretrievable damage is done in this direction; to the end that we may retain the markets that we now have for all our agricultural and meat products, and extend the same throughout Continental Europe. That as agriculturists we demand the enactment by Congress of laws putting into operation a parcels post system.

E. H. CUSHMAN,
REUBEN RANKIN,
Committee.

Mr. Cushman: I move the adoption of the resolutions.

And thereupon the resolutions were unanimously adopted, as reported by the committee.

The President: We will now have the report of the committee on credentials.

Mr. C. Bordwell: Mr. Chairman, your committee on credentials begs leave to file the following report:

After careful consideration we find no contest except in Hamilton and Clinton counties. After considering the evidence submitted to us, we have decided that the Hamilton and Clinton County Agricultural Societies are entitled to recognition in this convention.

(Signed.)

C. BORDWELL,
C. F. STEEN,
J. J. SNYDER,
Committee.

And thereupon the report of the committee was unanimously adopted.

The President: The next matter of business to come before the meeting will be the election of members of the State Board of Agriculture. It will be necessary to have two tellers to receive and count the ballots, and I will therefore appoint Mr. George W. Carey of Warren, and Mr. R. R. Green of Greene county.

Upon the first ballot Mr. William Miller and Mr. C. W. McFarland were duly elected to the full term of five years, and upon the fifth ballot Dr. H. M. Brown, of Hillsboro, was elected to fill the vacancy of three years, occasioned by the resignation of Capt. E. L. Lybarger, of Coshocton county.

And thereupon the annual meeting of the Ohio State Board of Agriculture adjourned.

SIXTEENTH ANNUAL REPORT

OF

FARMERS' INSTITUTES

Held in Ohio during the Winter of 1905-1906.

The Farmers' Institute season of 1905-1906 has proved no less successful than the preceding ones. It is a source of great satisfaction to the Ohio State Board of Agriculture that the work has become so thoroughly systematized and that, almost without exception, the various local societies are ready with hearty effort and cordial co-operation to do their part toward making the meetings a success in every way.

The Sixteenth Farmers' Institute season began on Monday, December 4, 1905, and closed Saturday, February 24, 1906. There were scheduled two hundred and forty-five (245) institutes, covering every county in the state and all were held as appointed, except the one which was established in Leesburg, Highland county, and this was removed to Highland for the reason that better hall accommodations could be secured. If we call the institute a school for the farmer and his family, and that is what it is in effect, we have thus had four hundred and ninety (490) days of school during the season, beside the many good and effective independent institutes which have been held.

The State Farmers' Institute was held in Columbus, January 9 and 10, 1906. It was well attended and more than the usual enthusiasm was manifested. The speakers were prominent agriculturists, instructors and specialists and no one in attendance can have failed to receive benefit from the meeting. The Board earnestly desires that all institute speakers, local officers and members, so far as possible, should avail themselves of the advantages of this state institute. It belongs to them, to all institute workers in all portions of the state, and might be likened to the "Old Home Week" of New England, when all the native sons and daughters of a town or locality that by any possibility can do so gather again in the old home, for the exchange of experiences and good wishes. The proceedings of the state institute and of the annual meeting of the State Board of Agriculture will be found immediately preceding this report.

In compliance with the law governing Farmers' Institutes in Ohio, the Board publishes herewith a financial statement for the year, showing moneys received and disbursed, a report of the various institutes held, a report of independent institutes held so far as they have been reported to the secretary, and several papers read at institutes on subjects of interest to the farmer and his family. Many papers submitted for examination were necessarily returned to the authors, not from lack of merit, but because they were written on similar subjects to others already accepted. Where so many excellent papers are received it is a difficult matter to make a choice, especially as but a limited number can be printed upon the same subject.

The Board feels that thanks are due to the press for its hearty aid in the work and to the various local societies that have responded so promptly to the demands the work has made upon them.

THE OHIO STATE BOARD OF AGRICULTURE,
By Wells W. Miller, Secretary.

Columbus, Ohio, March 21, 1906.

FINANCIAL STATEMENT.

The following statement shows the receipts and disbursements of the Ohio State Board of Agriculture on account of Farmers' Institutes held agreeably to the provisions of sections 3713-1 to 3713-6, inclusive, of the Revised Statutes of Ohio.

RECEIPTS.

Amounts collected from the counties on the basis of three mills per capita, being the State Board's share of the six mills per capita allowance provided by law for the maintenance and support of Farmers' Institute Societies of Ohio:

Adams county	$78 98
Allen county	125 00
Ashland county	63 55
Ashtabula county	125 00
Athens county	116 19
Auglaize county	93 58
Belmont county	125 00
Brown county	84 71
Butler county	125 00
Carroll county	50 43
Champaign county	79 93
Clark county	125 00
Clermont county	94 83
Clinton county	72 61
Columbiana county	125 00
Coshocton county	88 01
Crawford county	101 74
Cuyahoga county	125 00
Darke county	125 00
Defiance county	79 16
Delaware county	79 20
Erie county	112 95
Fairfield county	102 78
Fayette county	65 17
Franklin county	125 00
Fulton county	68 40
Gallia county	83 75
Geauga county	44 23
Greene county	94 84
Guernsey county	103 27
Hamilton county	125 00
Hancock county	125 00
Hardin county	93 56
Harrison county	61 46
Henry county	81 85
Highland county	92 95

Hocking county	$73 19
Holmes county	58 53
Huron county	96 99
Jackson county	102 74
Jefferson county	125 00
Knox county	83 30
Lake county	65 04
Lawrence county	118 60
Licking county	125 00
Logan county	91 26
Lorain county	125 00
Lucas county	125 00
Madison county	61 75
Mahoning county	125 00
Marion county	86 03
Medina county	65 87
Meigs county	85 86
Mercer county	84 06
Miami county	125 00
Monroe county	81 09
Montgomery county	125 00
Morgan county	53 71
Morrow county	53 64
Muskingum county	125 00
Noble county	58 40
Ottawa county	66 64
Paulding county	82 58
Perry county	95 52
Pickaway county	81 05
Pike county	54 52
Portage county	87 74
Preble county	71 14
Putnam county	97 57
Richland county	125 00
Ross county	122 82
Sandusky county	102 93
Scioto county	122 94
Seneca county	123 49
Shelby county	73 87
Stark county	125 00
Summit county	125 00
Trumbull county	125 00
Tuscarawas county	125 00
Union county	67 03
Van Wert county	91 18
Vinton county	45 99
Warren county	76 75
Washington county	125 00
Wayne county	113 61
Williams county	74 86
Wood county	125 00
Wyandot county	63 37
Total	$8,373 81

DISBURSEMENTS.

For per diem and expenses of lecturers, as follows:

Allen, F. L., Kinsman, forty-eight days	$419 25
Baldwin, S. J., Tallmadge, thirty-four days	296 70
Blackford, Frank, Eldorado, thirty days	280 30
Brigham, J. S., Bowling Green, thirty-six days	297 27
Buchanan, J. L., Sherodsville, eighteen days	141 00
Chamberlain, W. I., Hudson, fifty-four days	447 90
Cook, William M., Camden, thirty-six days	315 45
Deffenbaugh, C. E., Glenford, eighteen days	145 35
Derthick, F. A., Mantua, thirty days	229 00
Dobie, J. Al., Wapakoneta, fifty-two days	423 15
Dunlap, R. W., Kingston, twelve days	114 10
Farnsworth, W. G., Waterville, forty-eight days	403 45
Harsh, D. D., Minerva, eighteen days	136 95
Houskeeper, G. C., Bowling Green, forty-eight days	397 80
Judy, A. H., Castine, twenty-two days	178 02
McIntire, Charles, Chandlersville, forty days	345 95
Montgomery, Cary W., Newark, forty days	317 35
Nicodemus, J. W., Van Wert, eighteen days	128 70
Riggs, Ernest J., Raccoon Island, thirty-four days	308 35
Roudebush, Lowell, New Richmond, fifty-two days	436 45
Scott, George E., Mt. Pleasant, forty-six days	383 30
Shawver, John L., Bellefontaine, forty-eight days	392 10
Snyder, E. P., Monroeville, forty-eight days	374 45
Spencer, L. G., Nutwood, thirty-six days	300 95
Strode, S. E., Pennsville, thirty-four days	304 70
Thomas, M. C., Mingo, thirty-six days	288 65
Wagner, C. R., Arlington, forty-four days	360 65
Printing, postage and sundry expenses of the State Farmers' Institute	206 52
Total	$8,373 81

FARMERS' INSTITUTES HELD IN OHIO DURING THE SEASON BEGINNING DECEMBER 4, 1905, AND ENDING FEBRUARY 24, 1906.

Counties.	Population.	Institutes Held.		Attendance Reported.	Local Expenses Reported by Societies.	Per Capita Allowance to Institute Societies Under the Institute Law.
		Where.	When.			
Adams	26,328	Wamsley	December 15–16	150	$26 32	$78 98
		Peebles	January 3–4	250	30 00	
		Cherryfork	January 29–30	300	21 35	
Allen	47,976	Spencerville	January 19–20	250	18 75	125 00
		Harrod	January 24–25	485	34 96	
		Delphos	February 7–8	500	65 00	
		West Cairo	February 12–13	500	31 25	
Ashland	21,184	Loudonville	January 19–20	375	29 35	63 55
		Polk	February 12–13	500	19 22	
Ashtabula	51,448	Orwell	December 13–14	350	31 25	125 00
		Pierpont	January 19–20	389	31 25	
		Andover	February 2–3	230	31 25	
		Geneva	February 12–13	225	25 48	
Athens	38,730	Albany	December 11–12	200	28 90	116 19
		Amesville	January 3–4	175	29 04	
		Coolville	January 26–27	300	28 75	
		Athens	February 16–17	400	29 04	
Auglaize	31,192	Buckland	February 14–15	300	46 79	93 58
		Waynesfield	February 23–24	350	32 60	
Belmont	60,875	Loydsville	December 20–21	200	50 30	125 00
		Colerain	January 17–18	350	48 50	
		Morristown	January 26–27	185	49 75	
		Barnesville	February 16–17	400	58 22	
Brown	28,237	Fayetteville	December 20–21	350	28 23	84 71
		Mount Orab	January 5–6	250	21 94	
		Ripley	January 31–February 1	80	34 40	
Butler	56,870	Oxford	December 22–23	150	43 30	125 00
		Monroe	January 24–25	300	36 20	
		Trenton	February 21–22	300	41 66	
Carroll	16,811	Carrollton	December 8–9	500	30 00	50 43
		Magnolia	January 29–30	300	30 00	

		Magrew	January 22–23	300	41 00	
Champaign	26,642	Mechanicsburg	February 14–15	400	49 50	79 93
Clark	58.939	Catawba	December 11–12	150	29 75	125 00
		Donnelsville	December 29–30	375	60 85	
		Pitchin	February 9–10	275	65 00	
		Tremont city	February 12–13	250	30 15	
Clermont	31,610	Milford	December 18–19	165	31 61	94 83
		Point Isabel	February 2–3	350	31 50	
		Lerado	February 7–8	300	33 33	
Clinton	24,202	Clarksville	January 1–2	500	60 00	72 61
		Wilmington	February 9–10	400	53 00	
Columbiana	68,590	Rogers	December 4–5	300	31 25	125 00
		Lisbon	January 1–2	500	36 00	
		New Waterford	January 26–27	400	31 25	
		Damascus	February 7–8	750	47 18	
Coshocton	29,337	Fresno (Avondale)	December 4–5	175	22 45	88 01
		Nellie	January 24–25	300	35 83	
Crawford	33,195	Tiro	December 18–19	350	33 91	101 74
		Bucyrus	February 2–3	750	34 06	
		Galion	February 9–10	1,000	33 91	
Cuyahoga	439,120	Dover	January 15–16	250	31 25	125 00
		Euclid	January 15–16	200	33 90	
		North Royalton	January 31–February 1	300	26 71	
		Warrensville	February 2–3	300	41 27	
Darke	42,532	New Madison	December 18–19	350	56 11	125 00
		Arcanum	January 17–18	700	91 00	
		Palestine	January 26–27	350	31 25	
		Gettysburg	February 5–6	500	32 00	
Defiance	26,387	Sherwood	December 20–21	150	39 58	79 16
		Hicksville	January 24–25	280	39 58	
Delaware	26,401	Sunbury	December 29–30	300	35 30	79 20
		Delaware	February 23–24	700	39 60	
Erie	37,650	Milan	January 3–4	160	37 65	112 95
		Castalia	January 15–16	300	37 65	
		Berlin Heights	February 5–6	250	41 50	
Fairfield	34,259	Bremen	December 13–14	600	43 71	102 78
		Carroll	December 20–21	300	36 75	
		Pleasantville	January 29–30	400	73 23	
Fayette	21,725	Jeffersonville	February 5–6	764	32 58	65 17
		Moons	February 21–22	400	32 58	
Franklin	164,460	Westerville	December 15–16	200	35 00	125 00
		Groveport	December 22–23	200	31 25	
		Pleasant Corners	January 29–30	450	31 00	
		Hilliard	February 5–6	250	31 25	
Fulton	22,801	Wauseon	December 15–16	450	35 13	68 40
Gallia	27,918	Alexander Church	December 8–9	200	29 00	83 75
		Bidwell	December 22–23	250	27 50	
Geauga	14,744	Thompson	December 11–12	300	22 12	44 23
		Burton	February 16–17	275	14 70	
Greene	31,613	Bellbrook	February 9–10	400	48 03	94 84
		Cedarville	February 19–20	500	36 00	

FARMERS' INSTITUTES HELD IN OHIO DURING THE SEASON BEGINNING DECEMBER 4, 1905, AND ENDING FEBRUARY 24, 1906—Continued.

Counties.	Population.	Institutes Held.		Attendance Reported.	Local Expenses Reported by Societies.	Per Capita Allowance to Institute Societies Under the Institute Law.
		Where.	When.			
Guernsey	34,425	Antrim	December 18–19	200	$25 81	$103 27
		Cambridge	January 5–6	300	24 00	
		Byesville	January 24–25	150	23 87	
		Cumberland	February 14–15	300	23 16	
Hamilton	409,479	Blueash	January 5–6	400	31 25	125 00
		Mount Healthy	January 26–27	350	30 75	
		Newtown	February 5–6	200	31 25	
		Harrison	February 23–24	250	31 25	
Hancock	41,993	Mount Blanchard	December 8–9	100	31 25	125 00
		Arcadia	January 26–27	300	37 25	
		Benton Ridge	February 14–15	450	54 45	
		McComb	February 19–20	500	58 50	
Hardin	31,187	Forest	January 29–30	450	104 55	93 56
		Ada	February 12–13	600	46 78	
Harrison	20,486	Freeport	January 15–16	250	48 00	61 46
		Jewett	January 31–February 1	300	23 75	
Henry	27,282	Sharon Church	December 18–19	500	58 75	81 85
Highland	30,982	Mowrystown	December 22–23	300	30 00	92 95
		Highland	January 15–16	400	32 00	
		Hillsboro	February 9–10	350	30 98	
Hocking	24,398	Logan	December 15–16	234	94 95	73 19
		Laurelville	February 2–3	300	49 10	
Holmes	19,511	Killbuck	January 3–4	325	58 53	58 53
Huron	32,330	North Fairfield	December 22–23	200	31 80	96 99
		East Townsend	January 1–2	150	35 00	
		Greenwich	February 7–8	400	32 33	
Jackson	34,248	Rockyhill	December 11–12	250	22 05	102 74
		Jackson	December 27–28	250	34 00	
		Cove	January 19–20	300	34 24	

Jefferson	44,357	Mount Pleasant	December 22–23	200	56 65	125 00
		Smithfield	January 19–20	250	82 60	
		Richmond	February 2–3	500	93 50	
		Bloomingdale	February 23–24	300	64 71	
Knox	27,768	Ankenytown	December 6–7	200	33 06	83 30
		Centerburg	February 16–17	180	25 00	
Lake	21,680	Perry	January 17–18	200	36 00	65 04
		Painesville	February 14–15	213	32 52	
Lawrence	39,534	Rockwood	December 4–5	110	12 55	118 60
		Waterloo	December 6–7	400	39 50	
		Labelle	December 20–21	90	39 50	
Licking	47,070	Utica	December 8–9	200	39 15	125 00
		Brownsville	January 1–2	150	31 25	
		Croton	January 19–20	400	31 25	
		Alexandria	January 31–February 1	500	53 80	
Logan	30,420	East Liberty	December 15–16	300	43 53	91 26
		Degraff	February 19–20	500	45 63	
Lorain	54,857	Pittsfield	January 1–2	200	34 65	125 00
		Columbia Center	January 17–18	300	34 75	
		North Ridgeville	January 29–30	350	32 35	
		Rochester	February 5–6	400	131 25	
Lucas	153,559	Sylvania	December 13–14	200	24 00	125 00
		Richfield Center	January 3–4	250	25 00	
		Monclovo	January 24–25	300	30 00	
		Waterville	February 23–24	175	25 00	
Madison	20,590	West Jefferson	December 13–14	175	11 80	61 77
		London	February 7–8	400	58 75	
Mahoning	70,134	Canfield	December 6–7	200	31 25	125 00
		Berlin Center	January 3–4	200	31 25	
		North Jackson	January 24–25	250	31 25	
		North Lima	January 29–30	350	31 25	
Marion	28,678	Caledonia	December 11–12	200	21 00	86 03
		Waldo	December 27–28	180	20 19	
		Marion	February 21–22	128	27 65	
Medina	21,958	Brunswick	January 3–4	300	20 55	65 87
		Seville	January 31–February 1	400	49 00	
Meigs	28,620	Dyesville	January 1–2	300	12 83	85 86
		Racine	February 12–13	400	25 65	
		Rutland	February 14–15	400	34 75	
Mercer	28,021	Coldwater	January 15–16	150	13 90	84 06
		Mendon	February 16–17	325	13 00	
Miami	43,105	Bethel	December 27–28	235	31 64	125 00
		Piqua	January 24–25	450	47 63	
		West Milton	February 7–8	700	41 61	
		Troy	February 23–24	400	42 00	
Monroe	27 031	Beallsville	December 8–9	400	81 09	81 09
Montgomery	130,146	Brookville	January 19–20	600	79 82	125 00
		Centerville	January 22–23	400	32 70	
		Farmersville	February 19–20	500	75 00	
		Vandalia	February 21–22	400	38 40	
Morgan	17,905	Chesterhill	January 22–23	300	26 85	53 71
		Cloud	February 12–13	200	17 90	
Morrow	17,879	Johnsville	January 17–18	350	39 78	53 64

FARMERS' INSTITUTES HELD IN OHIO DURING THE SEASON BEGINNING DECEMBER 4, 1905, AND ENDING FEBRUARY 24, 1906—Concluded.

Counties.	Population.	Institutes Held.		Attendance Reported.	Local Expenses Reported by Societies.	Per Capita Allowance to Institute Societies Under the Institute Law.
		Where.	When.			
Muskingum	53,185	Norwich	January 3–4	150	$45 00	$125 00
		Adamsville	January 26–27	350	31 25	
		Chandlersville	February 2–3	350	45 77	
		White Cottage	February 12–13	400	64 42	
Noble	19,466	Summerfield	December 6–7	250	56 88	58 40
		Sharon	January 22–23	200	26 94	
Ottawa	22,213	Elmore	January 22–23	175	33 32	66 64
		Port Clinton	February 7–8	500	33 32	
Paulding	27,528	Haviland	January 15–16	400	41 29	82 58
		Payne	January 22–23	276	41 45	
Perry	31,841	Sayre	December 11–12	200	31 84	95 52
		Glenford	December 15–16	350	31 84	
		Rehoboth	February 14–15	274	31 84	
Pickaway	27,016	Tarlton	December 18–19	115	27 94	81 05
		Ashville	January 31–February 1	800	30 50	
		Williamsport	February 19–20	500	27 00	
Pike	18,172	Piketon	December 29–30	300	49 50	54 52
Portage	29,246	Garrettsville	January 22–23	200	40 60	87 74
		Randolph	February 9–10	300	38 20	
Preble	23,713	Eaton	December 20–21	350	47 10	71 14
Putnam	32,525	Rimer	December 6–7	400	32 52	97 57
		Leipsic	February 5–6	450	72 50	
		Continental	February 21–22	600	57 42	
Richland	44,289	Bellville	December 4–5	200	16 20	125 00
		Adario	December 20–21	450	64 00	
		Lucas	January 15–16	200	24 05	
		Butler	February 14–15	350	31 25	
Ross	40,940	South Salem	January 17–18	400	50 07	122 82
		Frankfort	February 7–8	200	100 00	
		Bainbridge	February 23–24	203	52 85	
Sandusky	34,311	Bellevue	January 5–6	300	39 50	102 93
		Clyde	January 17–18	500	41 06	
		Fremont	February 9–10	800	34 31	

Scioto	40,981	Scioto	December 13–14	200	40 75	122 94
		Haverhill	December 18–19	500	25 85	
		Mount Joy	January 1–2	155	13 18	
Seneca	41,163	Greenspring	December 27–28	500	36 74	123 49
		Tiffin	January 19–20	700	54 00	
		Fostoria	February 16–17	600	85 85	
		Attica	February 19–20	300	30 87	
Shelby	24,625	Jackson Center	January 22–23	250	40 29	73 87
		Sidney	February 21–22	210	36 93	
Stark	94,747	Marlboro	December 22–23	225	33 85	125 00
		New Berlin	January 15–16	400	33 33	
		Osnaburg	February 5–6	150	31 25	
		Beach City	February 19–20	325	31 25	
Summit	71,715	Nimisila	December 20–21	300	35 88	125 00
		Copley	January 5–6	230	34 23	
		Osborn Corners	January 19–20	185	33 25	
		North Springfield	February 2–3	400	36 20	
Trumbull	46,591	Vienna	December 8–9	140	31 00	125 00
		West Farmington	December 15–16	150	25 50	
		Newton Falls	January 5–6	300	31 25	
		Orangeville	January 31–February 1	100	30 40	
Tuscarawas	53,751	Gnadenhutten	December 6–7	200	31 25	125 00
		Winfield	January 1–2	210	31 25	
		Sugarcreek	January 22–23	390	31 25	
		New Philadelphia	February 21–22	175	31 25	
Union	22,342	Richwood	December 13–14	300	33 51	67 03
		Marysville	February 16–17	700	49 00	
Van Wert	30,394	Venedocia	December 4–5	325	30 69	91 18
		Convoy	January 17–18	650	30 39	
		Van Wert	February 9–10	650	77 70	
Vinton	15,330	New Plymouth	December 13–14	160	45 01	45 99
Warren	25,584	Morrow	January 3–4	350	90 00	76 75
Washington	48,245	Elba	December 4–5	150	29 28	125 00
		Watertown	January 5–6	240	31 25	
		Lowell	January 24–25	500	30 25	
		Bartlett	February 16–17	325	35 15	
Wayne	37,870	Creston	December 18–19	200	27 85	113 61
		Wooster	January 5–6	620	32 20	
		Orville	January 17–18	450	42 50	
		Lattasburg	January 29–30	525	32 68	
Williams	24,953	West Unity	December 22–23	300	22 90	74 86
		Montpelier	January 5–6	300	25 00	
		Bryan	January 26–27	380	31 92	
Wood	51,555	Grand Rapids	December 11–12	450	45 09	125 00
		Bloomdale	December 29–30	250	31 25	
		Tontogany	January 1–2	260	38 00	
		Bowling Green	January 26–27	260	42 55	
Wyandot	21,125	Upper Sandusky	January 31–February 1	850	55 80	63 37
Totals				81,816	$9,462 60	$8,373 81

INDEPENDENT INSTITUTES.

Counties.	Institutes Held.		Attendance Reported.	Local Expenses Reported by Societies.
	Where.	When.		
Allen	Beaverdam	February 7–8	300	$24 65
Auglaize	Cridersville	March 2–3	300	47 27
Ashland	Nova	February 20–21	350	48 50
Carroll	Malvern	Feb. 28–March 1	360	43 00
Clermont	Amelia	February 21–22	500	74 23
Cuyahoga	Strongsville	January 5–6	225	67 17
	Brecksville	January 29–30	220	45 00
Fairfield	Amanda	January 17–18	400	65 00
Fayette	Good Hope	January 12–13	500	52 36
Fulton	Delta	February 19–20	525	33 25
Greene	Clifton	January 30–31	190	32 50
	Jamestown	February 13–14	400	50 00
	Yellow Springs	February 22–23	550	57 50
Hancock	Ransom	February 9–10	300	32 15
Henry	Deshler	February 7–8	400	103 00
	Florida	February 23–24	500	60 00
Holmes	Holmesville	February 5–6	350	60 00
Knox	Fredericktown	February 9–10	275	53 00
Logan	Rushsylvania	January 12–13	250	33 00
Madison	Plain City	February 2–3	317	45 79
Medina	Mallet Creek	December 15–16	160	28 70
	Litchfield	January 5–6	250	25 00
	Hinckley	January 8–9	200	76 00
	Sharon Center	January 17–18	250	72 29
	Chatham	February 9–10	200	52 40
Mercer	Neptune	January 12–13	300	20 94
	Fort Recovery	March 2–3	400	54 00
Meigs	Chester	February 22–23	250	25 01
Morrow	Cardington	February 7–8	450	47 80
Muskingum	New Concord	December 12–13	225	65 60
Perry	Unity	January 2–3	250	16 70
Paulding	Antwerp	February 23–24	200	24 08
Preble	Eldorado	January 24–25	600	47 21
	West Manchester	February 14–15	500	60 50
Summit	Bath	December 27–28	250	55 00
	West Richfield	January 3–4	250	45 00
Warren	Waynesville	February 2–3	400	36 51
Wood	Prairie Depot	December 28	300	30 00
	Nevada	January 24–25	550	38 25
Totals			13,197	$1,848 36

RECAPITULATION.

1.	Amount collected by the State Board of Agriculture from the three mills per capita tax from the eighty-eight (88) counties of the state, in all of which institutes were held	$8,373 81
2.	Amount available for paying local expenses of two hundred and forty-five (245) institute societies, from the three mills per capita from the eighty-eight (88) counties of the state, in all of which institutes were held	$8,373 81
3.	Amount expended by the State Board of Agriculture in aid of two hundred and forty-five (245) county institutes for lecture work	$8,167 29
4.	Amount expended by county societies for expenses of two hundred and forty-five (245) institutes held	$9,462 60
5.	Total expenses of regular institutes	$17,629 89
6.	Average expenditure per institute, by State Board of Agriculture for lecturers	$33 34
7.	Average expenditure, per institute, by societies	$38 62
8.	Total average expenses per institute	$71 96
9.	Total average number of persons in attendance at two hundred and forty-five (245) institutes held	81,816
10.	Average number of persons in attendance at each	334
11.	Number of independent institutes reported	39
12.	Expenses of thirty-nine (39) independent institutes	$1,848 36
13.	Average expense of thirty-nine (39) independent institutes reported	$47 39
14.	Total average number of persons in attendance at thirty-nine (39) independent institutes	13,197
15.	Average attendance at each of thirty-nine (39) independent institutes	338

LECTURERS

EMPLOYED BY

THE OHIO STATE BOARD OF AGRICULTURE

For the Institute Season of 1905-1906, with Postoffice Addresses and Topics.

F. L. Allen, Kinsman, Trumbull County, Ohio.

1. A Study of Soils and the Problem of Fertility.
    - (*a*) The Origin, Composition, Kinds and Functions of Soils. Thirty minutes.
    - (*b*) Soil Water; Drainage. Thirty minutes.
    - (*c*) Conservation of Moisture. Thirty minutes.
    - (*d*) Humus; Soil Bacteria and Tillage. Thirty minutes.
    - (*e*) Manures and Fertilizers. Twenty-five minutes.
2. The Home Mixing of Fertilizers. Twenty-five minutes.
3. Silos and Silage. Twenty-five minutes.
4. In the Dairy. Twenty-five minutes.
5. Machinery on the Farm. Twenty-five minutes.
6. Maple Creek Farm. Twenty minutes.
7. Ohio Forests. Twenty-five minutes.
8. Some Profitable Investments. Forty minutes. Night.
9. The American Farmer. Forty minutes. Night.
10. The Farmer's Pocketbook. Forty minutes. Night.

S. J. Baldwin, R. R. 19, Tallmadge, Summit County, Ohio.

1. The Corn Crop. Thirty minutes.
2. Silos and Silage. Thirty minutes.
3. Feeds and Feeding. Thirty minutes.
4. Care of the Winter Dairy. Forty minutes.
5. Improving the Texture of Soils. Thirty-five minutes.
6. Commercial Fertilizers. Thirty minutes.
7. Some of Our Insect Friends. Twenty-five minutes.
8. Some of Our Feathered Friends. Twenty-five minutes.
9. Business Farmers. Thirty minutes.
10. The Evolution of the Farmer. Fifty minutes. Night.
11. Origin and Course of Storms. Sixty minutes. Night.
12. When the Earth Met a Comet, or the Great Glacier and Its Effects. Sixty minutes. Night.
13. The Chemistry and Philosophy of Maple Sugar Making. Thirty minutes.

Frank Blackford, Eldorado, Preble County, Ohio.

1. Crop Rotation. Twenty minutes.
2. The Corn Crop. Twenty minutes.
3. Soil Improvement. Twenty minutes.
4. Forest Farming. Twenty minutes.
5. The Farmer's Garden and Orchard. Twenty-five minutes.
6. Commercial Fertilizers. Twenty-five minutes.
7. The Hog. Twenty minutes.
8. The Milch Cow in the Corn Belt. Twenty minutes.
9. Scientific Agriculture, or What We Owe the State. Thirty minutes.
10. The Farmer as a Business Man. Thirty minutes. Night.
11. The Farmer's Home. Thirty minutes. Night.
12. Some Mistakes Current Among Farmers. Thirty minutes. Night.
13. Opportunities for Social Life and Culture Open to the Farmer. Forty minutes. Night.

J. S. Brigham, Bowling Green, Wood County, Ohio.

1. Small Fruit on the Farm. Twenty minutes.
2. Growing and Handling Potatoes. Twenty-five minutes.
3. Celery Culture. Twenty minutes.
4. Gardening for Profit. Twenty-five minutes.
5. Skill in Farming. Twenty-five minutes.
6. Some Profitable Crops. Twenty-five minutes.
7. Some Points in Using Manure and in Cultivation. Twenty-five minutes.
8. The Farm Garden. Twenty-five minutes.
9. Improving Our Corn Culture. Thirty minutes.
10. Possibilities of the Small Farm. Twenty-five minutes.
11. The Labor Problem on the Farm. Twenty-five minutes.
12. Reading: Its Influence in the Farm Home. Twenty-five minutes. Night.
13. What Organization Can Do for the Farmer. Forty minutes. Night.
14. Life on a Texas Cattle Ranch. Forty minutes. Night.

J. L. Buchanan, Sherodsville, Carroll County, Ohio.

1. The Farmer's Day Book. Fifteen minutes.
2. The Dual Purpose Cow. Twenty minutes.
3. Starting and Growing the Colt. Twenty minutes.
4. The Horse for the Farmer. Thirty minutes.
5. Shall We Improve Our Live Stock, and How? Twenty minutes.
6. The County Fair. Twenty minutes.
7. Farm Equipage. Twenty minutes.
8. Possibilities for the Farmer's Boy. Twenty-five minutes. Night.
9. What is the Pay? Thirty minutes. Night.

W. I. Chamberlain, Hudson, Summit County, Ohio.

1. Money in Apples.
    (*a*) Growing the Trees. Fifteen minutes.
    (*b*) Growing and Selling Fancy Apples. Fifteen minutes.
2. Why and How we Rotate Crops. Twenty-five minutes.
3. Why and How we Drain with Tiles. Twenty-five minutes.
4. The Principles of Barn Building. (Illustrated.) Twenty-five minutes.
5. Live Stock on the Farm. Twenty minutes.

6. The Making of our Ohio Soils. (Illustrated.) Twenty-five minutes.
7. The Sources, Contents and Uses of Commercial Fertilizers. Twenty minutes.
8. The Maple Syrup Camp. Twenty-five minutes.
9. The Joy of Living in this Good World. Fifty minutes. Night.
10. The Debt we Parents Owe our Children. Fifty minutes. Night.

William M. Cook, R. R. 3, Camden, Preble County, Ohio.

1. Crop Rotation. Twenty-five minutes.
2. Sorghum; Care and Value as a Winter Feed. Twenty-five minutes.
3. Soil Improvement. Twenty-five minutes.
4. The Practical Use of Commercial Fertilizers. Twenty-five minutes.
5. The Possibilities of Scientific Agriculture. Twenty-five minutes.
6. Short Cuts in Farming. Twenty-five minutes.
7. The Growing of Alfalfa. Twenty-five minutes.
8. Economical Hog Raising. Twenty-five minutes.
9. Modern Corn Culture. Twenty-five minutes.
10. Back to the Soil. Fifty minutes. Night.

C. E. Deffenbaugh, Glenford, Perry County, Ohio.

1. The Soil:
    (*a*) Necessity of Care in its Treatment. Twenty-five minutes.
    (*b*) Its Preparation. Twenty minutes.
    (*c*) Methods of Maintaining Fertility. Twenty-five minutes.
2. The Legumes, Clover, etc. Twenty minutes.
3. The Animal and its Care. Twenty-five minutes.
4. Some Things to be Considered in Growing Corn and Wheat. Twenty-five minutes.
5. This, That and the Other. Twenty minutes.
6. The Farmer Boy and His Opportunities. Thirty minutes. Night.
7. The Mistakes of Life. Thirty minutes. Night.
8. Education. Thirty minutes. Night.

F. A. Derthick, R. R. 2, Mantua, Portage County, Ohio.

1. Comparative Profit of an Average Acre of Corn and Potatoes. Thirty minutes.
2. Qualifications of a Good Horseman. Thirty minutes.
3. Qualifications of a Successful Dairyman. Thirty minutes.
4. Uses of Rye on the Farm. Twenty minutes.
5. Farm Conveniences. Twenty minutes.
6. The Importance of the Apple Orchard and its Care. Twenty minutes.
7. The Importance of Farmers' Organizations Today. Forty minutes.
8. The Ohio State Board of Agriculture; its Work. Thirty minutes.
9. Recreation for the Farmer. Thirty minutes.
10. A Trip to New England, via Niagara Falls. Thirty minutes. Night.
11. To the Pacific Coast and Return. Thirty minutes. Night.
12. Advantages of Farming as a Life Work. Forty minutes. Night.

J. Al Dobie, Wapakoneta, Auglaize County, Ohio.

1. Destroying Noxious Weeds. Twenty-five minutes.
2. Intensive Farming. Thirty minutes.
3. Growing Hogs in Winter. Thirty minutes.

4. Taste in Farming. Twenty minutes.
5. A Plea for Better Feeding. Twenty-five minutes.
6. Some Objects of Cultivation. Thirty minutes.
7. The Problem of Soil Texture and Fertility. Thirty-five minutes.
8. A Study of Crop Rotation. Twenty-five minutes.
9. Looking Forward. (For Young People.) Forty-five minutes. Night.
10. Ideals and Realities in Life. Forty minutes. Night.

R. W. Dunlap, Kingston, Ross County, Ohio.

1. Raising and Marketing a Corn Crop in the Scioto Valley. Thirty-five minutes.
2. Seven Years' Experience with Alfalfa. Twenty minutes.
3. Experiments:
   (*a*) With New Crops. Fifteen minutes.
   (*b*) With Commercial Fertilizers. Fifteen minutes.
4. Effect of Food on the Quality of Milk. Fifteen minutes.
5. Cattle Feeding. Twenty minutes.
6. The Modern Draft Horse. Twenty-five minutes.
7. Animal Mechanics. (Illustrated.) Twenty minutes.
8. Tile Draining. Twenty minutes.
9. Operating a Thousand Acre Farm. Twenty-five minutes.
10. Miscellaneous Little Things. Twenty-five minutes.
11. County, State and International Fairs. Twenty-five minutes.
12. Agriculture at the Ohio State University. Twenty minutes.
13. The Ohio State Board of Agriculture: The Grand Work it is Doing for the Farmer. Twenty minutes.
14. The Farmer's Duty. Thirty-five minutes. Night.
15. Citizenship. Forty minutes. Night.

W. G. Farnsworth, Waterville, Lucas County, Ohio.

1. How we Grow and Handle Potatoes. Twenty-five minutes.
2. Culture and Breeding of the Corn Plant. Twenty-five minutes.
3. Planting and Care of the Orchard. Twenty minutes.
4. Shall the Farmer Grow Fruits? Twenty-five minutes.
5. Growing Small Fruits Commercially. Thirty minutes.
6. Pruning Small Fruits and Orchards. Twenty minutes.
7. How and When to Spray. Twenty-five minutes.
8. Marketing Our Produce. Thirty minutes.
9. How to Maintain and Increase Soil Fertility. Thirty-five minutes.
10. The Farmer's Team. Twenty-five minutes.
11. Mutual Fire Insurance for Farmers. Twenty-five minutes.
12. Hired Help on the Farm. Thirty minutes.
13. Soil Moisture; How Controlled. Twenty minutes.
14. Our Experiment Station and Its Work. Twenty minutes.
15. Partnership in the Home. Thirty-five minutes.

D. D. Harsh, Minerva, Stark County, Ohio.

1. Labor Without Price. Twenty-five minutes.
2. Intensive Farming. Twenty-five minutes.
3. The Dairy Cow and How to Produce Her. Twenty-five minutes.
4. Raising Sheep for Profit. Twenty-five minutes.
5. What Hog Should the Farmer Produce? Twenty-five minutes.

6. The Farm Horse and How to Produce Him. Twenty-five minutes.
7. Small Fruit on the Farm. Twenty-five minutes.
8. How to Have Good Neighbors. Twenty-five minutes.
9. The Farmer's Best Produce. Twenty-five minutes.
10. How to Get Rich on the Farm. Twenty-five minutes.
11. Why do Our Boys and Girls Leave the Farm? Thirty minutes. Night.
12. Our Buildings and Home Surroundings. Thirty minutes. Night.
13. Advantages of the Farm as a Home. Thirty minutes. Night.

G. C. Houskeeper, Bowling Green, Wood County, Ohio.

1. Growing and Marketing Potatoes. Twenty minutes.
2. Growing and Disposing of the Corn Crop. Twenty minutes.
3. Growing and Marketing Hogs. Twenty minutes.
4. Why Rotate Crops? Twenty minutes.
5. Fruits for Home Use. Fifteen minutes.
6. Some Valuable Helps. Twenty minutes.
7. Air, Rain, Frost, etc. Twenty minutes.
8. Advantages of Farming. Twenty minutes.
9. Why and What Shall we Read? Fifteen minutes.
10. Possibilities. Twenty-five minutes. Night.

A. H. Judy, Castine, Darke County, Ohio.

1. Cultivation, Care and Marketing of the Corn Crop. Twenty minutes.
2. Wheat; Oats; Straw. Twenty minutes.
3. Clover, Manure, Drainage. Twenty-five minutes.
4. Successful Tobacco Growing. Fifteen mintues.
5. Feeding Hogs for Profit, Summer and Winter. Twenty minutes.
6. Some Problems we Must Solve. How? Twenty minutes.
7. Making the Farm Pay. Fifteen minutes.
8. Managing an Eighty Acre Farm. Twenty minutes.
9. The Price of Success. Thirty minutes. Night.
10. Yesterday; Today; What of the Morrow? Thirty minutes. Night.

Charles McIntire, Chandlersville, Muskingum County, Ohio.

1. Blue Grass, Its Value and Care. Twenty minutes.
2. Growing, Selecting and Testing Seed Corn. Thirty minutes.
3. Swine Feeding for Profit. Twenty minutes.
4. Profitable Classes of Horses for Ohio Farmers to Produce. Thirty-five minutes.
5. Profitable Methods of Handling Cattle. Thirty minutes.
6. Increasing the Productiveness of Soils. Thirty-five minutes.
7. The Feeding of Farm Animals. Thirty minutes.
8. The Value of an Agricultural Education, and How it May be Obtained. Thirty minutes. Night.

Cary W. Montgomery, R. R. 9, Newark, Licking County, Ohio.

1. Clover. Twenty minutes.
2. Potatoes. Twenty minutes.
3. Melons. Fifteen minutes.
4. Soil Conditions Essential to Crop Production. Twenty-five minutes.
5. Methods of Making Run-down Land Productive. Twenty minutes.

6. How Plants Feed and Grow. Twenty minutes.
7. Planting and Growing Fruit Trees. Twenty minutes.
8. The Farmer's Fruit Garden. Twenty minutes.
9. Marketing Produce. Twenty minutes.
10. Fertilizers. Twenty minutes.
11. Leaks on the Farm. Twenty-five minutes.
12. Rural Amusements. Twenty-five minutes. Night.
13. What Do We Owe to Our Community? Thirty minutes. Night.

J. W. Nicodemus, Van Wert, Van Wert County, Ohio.

1. Soil Texture. Twenty-five minutes.
2. The Horse and the Farm. Twenty-five minutes.
3. System and the Human Element in the Breeding of Live Stock. Twenty-five minutes.
4. The Weeds. (Illustrated.) Fifteen minutes.
5. The Family, House and Yards. Twenty-five minutes.
6. Is the Small Farmer a Failure? Twenty-five minutes.
7. When Does the Test in Life Come? (For Young People.) Twenty-five minutes. Night.

Ernest J. Riggs, Raccoon Island, Gallia County, Ohio.

1. Principles of Stock Feeding. Twenty-five minutes.
2. The Care and Management of Sheep on the Farm. Twenty minutes.
3. The Farm Poultry. Twenty minutes.
4. The Apple Orchard. Twenty minutes.
5. Theory and Practice of Spraying. Twenty-five minutes.
6. Soil Improvement. Twenty minutes.
7. Soil Moisture and Ways of Controlling it. Twenty minutes.
8. The Farm Lawn. Fifteen minutes.
9. Side Lights from the Ohio State University and the Ohio Agricultural Experiment Station. Twenty-five minutes. Night.
10. Only a Farmer. Thirty minutes. Night.

Lowell Roudebush, R. R. 1, New Richmond, Clermont County, Ohio.

1. Alfalfa. Fifteen minutes.
2. The Farmer's Garden. Fifteen minutes.
3. Noxious Weeds and How to Destroy Them. Twenty minutes.
4. Some Common Mistakes in Raising Poultry. Twenty minutes.
5. Why Farmers Should Raise Sheep. Twenty minutes.
6. Is it Profitable to Raise Horses? If so, What Class? Twenty minutes.
7. Feeding Stock for Profit. Twenty-five minutes.
8. Care and Management of Small Fruits. Twenty minutes.
9. The Outlook for Orcharding in Ohio. Twenty minutes.
10. The Essentials in Spraying. Twenty minutes.
11. The San Jose Scale. Twenty minutes.
12. The Coddling Moth. Fifteen minutes.
13. The Hessian Fly. Twenty minutes.
14. Some New Insects of Grain and Forage Crops. Twenty minutes.
15. Natural Enemies of Insect Pests. Twenty minutes.
16. What the United States Department of Agriculture is Doing for the Farmer. Twenty-five minutes.
17. Gates. Forty minutes. Night.
18. The Clouds; In and Above Them. Thirty minutes. Night.

George E. Scott, Mt. Pleasant, Jefferson County, Ohio.

1. Some New Things About Corn. Twenty-five minutes.
2. Construction of a Wooden Hoop Silo. Twenty minutes.
3. Ensilage as an Economic Feed. Twenty-five minutes.
4. Handling and Feeding the Dairy Herd. Twenty-five minutes.
5. The Farm Poultry Yard. Twenty-five minutes.
6. Why it Pays to Improve Live Stock. Twenty-five minutes.
7. Clover Compared with Fertilizers. Twenty-five minutes.
8. About the Things We Eat and Drink. Twenty-five minutes.
9. The Farm Labor Problem. Twenty-five minutes.
10. Organic and Inorganic Fertility. Twenty-five minutes.
11. Cultivation of the Manure Crop. Twenty-five minutes.
12. Nobility of Farm Life. Forty minutes. Night.
13. The Ebb and Flow of Years. Forty minutes. Night.

John L. Shawver, Bellefontaine, Logan County, Ohio.

1. The Farm Dairy. Thirty minutes.
2. Feeds and Feeding. Thirty minutes.
3. Making, Saving and Applying Manures. Twenty-five minutes.
4. Fourteen Years' Experience with Alfalfa. Twenty-five minutes.
5. Farm Buildings. Twenty minutes.
6. Household Aids and Conveniences. Thirty minutes.
7. The Farmer's Fruit Supply. Twenty-five minutes.
8. The Farmer as a Business Man. Thirty minutes.
9. The Farmer's Table. Thirty minutes.
10. Why Go to the City, Young Man? Thirty minutes.
11. The Education of Our Boys and Girls. Thirty minutes.
12. Seed Time and Harvest. (A Talk to Young People.) Fifty minutes. Night.

E. P. Snyder, R. R. 1, Monroeville, Huron County, Ohio.

1. Shall We Keep Sheep? Twenty minutes.
2. Winter Care of Sheep. Fifteen minutes.
3. Wheat, Growing and Marketing. Fifteen minutes.
4. A Farmer's Way with Strawberries. Twenty minutes.
5. Small Fruit for the Farmer. Twenty minutes.
6. Mutual Fire Insurance. Fifteen minutes.
7. Saving and Applying Manure. Twenty minutes.
8. A Few of the Possibilities of Farming. Thirty minutes. Night.
9. Lights and Shadows of Soldier Life. Forty minutes. Night.

L. G. Spencer, R. R. 1, Nutwood, Trumbull County, Ohio.

1. The Dairy Cow and Her Care. Thirty minutes.
2. Butter Making for a Home Market. Thirty minutes.
3. Swine Growing for Profit. Twenty minutes.
4. Small Fruit for the Small Farm. Thirty minutes.
5. Noxious Weeds. Twenty minutes.
6. The Silo; Its History and Value. Thirty minutes.
7. One of the Problems on an Ohio Farm. Thirty minutes.
8. The Farmer's Friends. Twenty minutes.
9. The County Fair. Thirty minutes.
10. What Shall I Do? (To Young Men.) Forty minutes. Night.
11. The Farm Home as a Factor in our Nation. Fifty minutes. Night.

S. E. Strode, R. R. 1, Pennsville, Morgan County, Ohio.

1. Points in Wheat Culture. Twenty-five minutes.
2. Clover on Ohio Farms. Thirty minutes.
3. Plant Food from Manures, Legumes and Commercial Fertilizers. Forty minutes.
4. Sheep on the Farm. Thirty minutes.
5. Winter Eggs for the Farmer's Table and Market Basket. Thirty minutes.
6. The Apple Orchard, Planting and Growing. Twenty-five minutes.
7. Making an Old Apple Orchard Profitable. Twenty minutes.
8. Problems in Hillside Farming. Thirty minutes.
9. Some Mistakes We Farmers Make. Forty minutes.
10. Shall the Boy Choose Agriculture for an Occupation? Forty-five minutes. Night.

M. C. Thomas, Mingo, Champaign County, Ohio.

1. Potato Notes. Twenty minutes.
2. Corn Growing. Twenty-five minutes.
3. Swine Management for Profit. Twenty-five minutes.
4. Cement Floors. Twenty minutes.
5. Points in Successful Wheat Growing. Twenty minutes.
6. Clover and its Value. Twenty minutes.
7. The Old and the New in Maple Syrup Making. Twenty minutes.
8. The Ohio Agricultural Experiment Station and its Value to the Farmer. Twenty-five minutes.
9. The Problem of Soil Fertility. Twenty-five minutes.
10. Factors of Success. (A Talk to Young People.) Thirty minutes. Night.

C. R. Wagner, R. R. 15, Arlington, Hancock County, Ohio.

1. Live Stock Essential to Successful Agriculture. Thirty minutes.
2. Principles Upon Which Animal and Plant Breeding Rest. (Illustrated.) Thirty minutes.
3. Object and Principles of Live Stock Feeding. (Illustrated.) Thirty minutes.
4. The Manure Supply; Making, Saving and Applying. (Illustrated.) Thirty minutes.
5. A Study in Plant Life. Thirty minutes.
6. The Profitable Sheep. Thirty minutes.
7. The Ohio Agricultural Experiment Station. (Illustrated.) Thirty minutes.
8. The Agricultural Fair. Thirty minutes.
9. The Rural School; Problems in Organization, etc. Thirty minutes.
10. The Boy, the Girl and the Farm. Thirty-five minutes.
11. The Power of Concentrated Thought and Action. Forty minutes. Night.
12. The Home; Its Influences and Surroundings. Forty minutes. Night.

PAPERS READ AT
FARMERS' INSTITUTES, 1905-1906.

Forwarded to the Secretary of Agriculture for Publication.

"THE HORSE."

BY W. H. PETERS, CRESTON, OHIO.

[Read at the Farmers' Institute, held at Creston, Wayne county, December 18 and 19, 1905.]

Of all the animals that man has domesticated for his purposes, the horse bears the distinction of being the most useful, and I believe he would be the hardest to get along without, although we all share the belief that nothing of all the animal kingdom was created in vain. Scarcely one of the primitive animals could have been lower in the scale of intelligence than the native horse was, as man found him, still he has proven to be our truest and noblest animal friend. Utility, together with our love for this God-given helper, was the incentive for man to improve on the original, until from that scrubby, ragged little pony was evolved a beast of burden almost rivaling the elephant.

Great improvement has been made in all the domesticated animals, but the development of the horse stands out in particular, as an example of what man can do with the material God has placed at his command.

Not only has he developed, among other qualities, size, but he has evolved that satin-coated, velvety-skinned, lithe-limbed animal of locomotion, until he equals the deer in texture, surpasses the stag-hound in speed, and is next to man in intelligence.

We find the horse closely allied with man as far back as history, poetry and song runs, and we find evidences of his existence in geology, mythology and tradition. He has drawn man's loads and borne man's burdens from time immemorial. He has shared man's hardships and enjoyed man's bounties. They have shared the same apple, drunk from the same pail, and slept in the same box-stall. Whether fondled by the child, caressed by the maiden, or driven by the mother, he is the same true and trusty friend. Whether in the field of patient toil or amid the roar of musketry on the bloody field of battle, on country road or city street, or in the more spirited contest of speed on the turf, he is the same patient, enduring, courageous slave of man, at times exhibiting the timidity of a fawn and again showing the courage of a gladiator; such an animal God has given to man for his use.

How man looks upon that gift, and what the use to which he puts it only requires a glance to see. One man will drudge and slave his poor horse day after day throughout the year with no regard to his physical condition or health; while another will guard the health of his horse almost as carefully as he would a member of his own family. One man will work his horse all day until he is so worn as hardly to be able to make the last steps to his manger, and allow him to find that manger empty, while another, will work him moderately, quit in good time, supply him with good water, take him to a comfortable stall well supplied with straw, the manger filled with hay and an abundant supply of nutritious grain, where he can eat heartily, rest comfortably, and be again ready for his next day's work. The first man will turn his poor, jaded, neglected brute into his stall with scarcely enough feed to keep off starvation, pull off the harness, the old rough collar which was, perhaps, made for a horse hundreds of pounds larger, or smaller, and see him no more that night, unless it be to drive him away on a trip of business or pleasure, tie him out, maybe, in a blinding storm with no blanket, and leave him there till the "wee small hours of the morning," when it is nearly time to throw on the harness for another day's hard drudgery; while the latter will have a pail of cool or warm water, according to the weather, and a sponge to cleanse any parts that may have become sweaty, chafed, or that threaten to become sore and will also have a can of good ointment close at hand to be used as needed. The harness must fit the horse and especially the collars and bridles.

As I stated at the beginning, the uses to which the horse can be put are varied and numerous, and the sizes and types of horses are as numerous and varied. They vary in size from the child's little pet of a hundred pounds to the mammoth mass of bones and muscles used to draw the heavy trucks in the city's traffic, and the beauty of it all is, that man can, by intelligent breeding, produce the kind of horse he wants or the market demands.

If he wants the heavy draft horse he can be produced to a certainty, because size and weight are the essential characteristics. Of course, there is quality, and the lack of quality; and prices vary with quality, but size is all important, as with size we have the draft horse, without it we do not. The draft breeds are therefore the safest adventure in the line of breeding, as the profits are good and the chances of loss or failure much less than in any other class. Each breed has its advocates and admirers, but perhaps, the French horse has the most. The Belgian is gaining many friends, but if we can produce the size and weight in any breed, we will always have a market.

Next to the draft breeds, for certainty of production, is the roadster. A good roadster can be produced nearly, if not quite as certainly as the draft horse if the breeding stock possesses the qualities we wish. It is no longer possible to obtain top prices for a gentleman's driving horse, unless he has speed or fancy high action, and as the American trotter produces the highest type of knee action, the surest way to get the type wanted is to breed for a trotter. If the best specimens of the American trotter are used, we have, at least, a three-fold chance. The offspring is very liable to have speed; if not, the chances are at least even that he will have the high action or will at least be a better ordinary roadster than the man has who uses inferior stock.

You will probably infer from my remarks that I am not an admirer of the light harness horse of foreign nativity, but how can you blame me, when the dealers and devotees of the foreign breeds themselves, acknowledge that they have poor constitutions, to say the least. It may be that our cousins across the water have produced nearer to certain types than we have, but they have surely lost much of the endurance and courage of our American trotter. Besides, if we fail to get a high quality of knee action, we certainly have no chance of getting a trotter, and next to no chance of getting even an ordinary roadster that can stand a fair day's drive, or bring a fair average price on the general market; which is equivalent to saying that unless we get what we breed for, fancy knee action, we do not get much of anything else of market value.

First, let us decide what we wish to produce, then go at it in an intelligent, business-like way. If we take the greatest pains in selecting our stock to begin with we shall make some failures, but our chances of success will be much better. "You cannot squeeze blood from a turnip" or "shave hair from the palm of your hand;" neither can you produce a good light-harness horse from stock that is deficient in the qualities that go to make up such a horse.

As the famous artist mixed his paint "with brains," so we must mix our colts' feed, and in fact all the work that pertains to him, with a liberal amount of the same ingredient. A plentiful supply of ground or crushed oats, with bran, good hay, and grass in season, supplemented by fresh water, and a box of salt conveniently located, are among the essentials. I hardly think a colt should have much corn, and if it is desired to keep grain before him at all times, the feed box should be arranged so it will be fed a little at a time as it is picked up by the colt, otherwise it will soon get mumbled over and will not be relished, and perhaps not eaten. Always remembering that it is just as easy to stroke his soft coat with our hand as it is to "crack" him over his head with the fork, and it will prove much better for the colt. I am very much in favor of cooking the grain for both horses and colts; as a matter of economy, I think it pays, as the same quantity will do more good. It is more easily digested, and therefore it enables one to feed a little heavier without impairment of the digestive organs, if it is desirable to fat or build up the animal more rapidly. Then it is a good way to tell how much oats are worth as a feed. The better filled the grain, the more it will swell. I cook for one or two horses on the cooking stove, but unless you have a very good-natured wife, perhaps it would not be well to try that, as real plump oats are likely to fill the kettle to running over, and then, the odor is not the most pleasant.

As colts are raised for their usefulness, and not merely to look at, everything ought to be done that can be to increase that usefulness. Next to having the size, conformation, and other natural qualifications suitable in such a horse as you desire, is to have him good-mannered, and well educated in his line of work. The draft breeds are usually easy to break, and can generally just be hitched up and driven off, but if you get one occasionally that has more regard for his own wishes than for his driver, he must, of course, be brought to an understanding. In fact, I think every man ought to have an understanding with his horse as to who should be—master. (I almost said "boss," but there has been so much said about bosses lately that we have come to abhor the very idea, even when it pertains to nothing more than a man's relation to his horse; so I use the word master advisedly.)

So much has been said about the breaking of colts that it hardly seems as if there is anything else to say, but the importance of the subject is full justification for a repetition of what may have been said. What is a horse worth unless he has good manners and is under full subjection? Without these, he should be put to such use as will not require them in any great measure; but surely he should not be used except by the best horsemen. Some men can handle almost any horse, but there are others who will have trouble with the best. Such a man should be careful to get only the kind that is well broken and has good manners; and let the other fellow, that thinks he can handle any of them, have the bad ones at what they are worth; and we can nearly always find some one who will take the chances. The horse was created for our use and there are very few but can be broken and used, if taken from the start, and not spoiled or soured.

If you feel as if you cannot break a horse or colt, do not try it, for he will discover your fears very quickly. If you have any reason to fear you cannot master the colt, better get help or sell him unbroken, before taking the chances of spoiling him and thus making him so much harder to conquer. The ideal way is to begin with the little fellow while yet weak, and establish your mastery. Keep at it until he is old enough to hitch, and the breaking will be easy. Establish the kind of fear that will keep him from violating your commands, or disregarding your authority, but not the kind of fright that will cause him to flee at sight of you and make it necessary to corner him in order to halter him. I have seen men in charge of a bunch of colts who were so brutal to the little fellows that a comfortable box-stall and plenty of good feed would not induce them to "run the gauntlet" of passing their keeper to get in out of a violent winter storm. And it was my fortune to have the same colts to break, when the time came. After two or three years of that kind of treatment, do you think they ever forgot it? No! Fear was so thoroughly imbedded in their natures that they never forgot it. It might not be out of place to state that that farm had to incur the extra expense of driving them from one to three years before they were safe to sell, and a number of them never were safe, which was principally on account of the brutal treatment they had received the first two years of their existence.

While I am always sorry to see any kind of animal abused, it is true, I have had a few colts to break that had come to that point when it seemed that only a good sound whipping would reduce them to subjection. Kindness and coaxing might have accomplished the work in time, but men do not like to pay the trainer for coaxing and petting their colts into submission when it seems like an endless job. Whether a horse is bidable and easily broken, or shows a disposition to be headstrong and mean, he must be brought under subjection by some method before he can be considered safe. There are as many shades of dispositions in the horse as there are in his masterman, and it requires judgment to know in each case just what is best to do, and if he is wrongly interpreted it sometimes makes a long job out of a short one. If "sparing the rod, is spoiling the child," a highly intelligent creature, one would naturally suppose the same would find a more general application among the equine family, but I doubt very much, if that be true.

The rod will sometimes assist in establishing authority over the child or the lower animal when it seems that nothing else will, but I am convinced that it is resorted to many times when it need not be if the parent or trainer would only make a more exhaustive use of his reasoning faculties, and not be guided by his temper in meting out corrections to the young and undeveloped of either class. If it is true that the rod should only be resorted to after we are convinced that the pupil knows what is required and understands just how to do it but still stubbornly refuses, then does it follow, that the more dull or stupid the subject, the more patience the task requires, and the slower we ought to be in appealing to that instrument? We can spin all kinds of theories in regard to the efficacy of corporal punishment, but so long as there is not developed a higher state of intelligence, or a more general instinct to do right born in man and beast, the orchards and groves will continue to be scoured for the toughest and straightest sprouts.

It is almost wasting time to talk about imperfect beings doing things perfectly, still the civilized world is fast substituting kindness for cruelty; the humane for the brutal; intelligence for ignorance, and wherever the light of the gospel has extended, kindness and patience, intelligence and love, have gone hand in hand, and just in proportion as we learn Christ's precepts, and obey his teachings, does our love for each other and for the lower animals, also God's creatures, increase. At any rate, we should control our tempers, as anger unfits us for training, or in fact, for doing any other commendable thing. "He that is slow to wrath is of great understanding." It then follows, that the more we become masters of any situation, the less likely we are to lose our heads and fly off in a fit of anger. Proper punishments can be, and ought to be administered good-naturedly but firmly, if we would have the desired good result from them.

Kindness and love will win love in return, and qualities resulting from kind treatment can always be depended upon; and it is these qualities that go to distinguish the true and noble horse, fit for any member of the family to use; the kind that enjoys the companionship of the little ones; the kind that will permit all the babies to climb on his back that can find room. Kindness and patience are great educators. In fact, about all the good that is accomplished, is brought about through their agency, and I doubt if any kind, noble, patient, obedient horse ever attained to that state, except through kind and loving treatment. I have had charge of more than one colt that drove nicely enough for me, but when the owner was present became frantic and almost unmanageable. You can draw your own conclusions.

In justification of some of us who make a business of breaking colts, I will say, what you all know, that we get many of the worst that can be found, some that have passed through perhaps several hands, and "come off more than conquerors." You need not be told how that makes bad jobs. And, if the trainer is sometimes compelled to be extremely firm, and often apparently cruel, it is no more than incorrigibles of the human family are subject to. If a man is a devil, and uses all the horses in his charge that way, he ought to be stopped; but if that is the exception, rather go where you cannot see what is going on, instead of getting as near to the fray as possible, and then complaining to the neighbors that you were compelled to witness that brute abuse his horse so cruelly. I like to get as far from that kind of horses as possible, and I assure you that no one enjoys it, who is not in the fray, if even such do. I think that if there is any being on earth that is more contemptible than a wife beater it is a horse beater, and that no process of beating will, or ever did, make a good, true wife, neither will it ever make a good, true horse.

Methods of training and breaking the horse have improved, in the course of time, as much as systems of breeding, and it is the horse lover that has accomplished the work. The breaking process is no longer a rough-and-tumble, hand-to-hand combat, fit only for the arena, in which sometimes the man sometimes the colt comes out on top. It is a gradual process of education, passing from point to point until the horse graduates in the science of general utility and is fit for a timid lady or even a child to handle. As I said it is the lover of the horse who has accomplished the change.

I have often said that if every boy were fortunate enough to find the work for which he is best adapted, and got properly started at it, there would be but few lazy men in the world. It may be that not every one is best suited for some particular work of life, but those who are, should follow it, I think. The carpenter, who has no love for his trade, would make a dwelling not much more beautiful or convenient now than he would in the eighteenth or nineteenth century. The artist whose whole business life is not in his brush, makes but dead strokes, and expressionless pictures, while the artist who becomes famous enters into his work with a love resembling that of Divine love for the creatures of His hand. The man who is careless about horses would as lief have a little, crooked, ill-shaped horse as any other, and if it depended upon him, we should have only that kind. No one will contend, for an instant, that the men who improved the different breeds, and brought them to their present state of development, did not have a love for the animal. In the draft breeds it is size with perfection of conformation for which they are striving, and in the light harness horse it is speed or action with beauty of contour, and docility, that is the breeders' goal. While nearly all enjoy beauty in the horse as much as in other creatures, it is to the devotees of the animal, that we are indebted for the opportunity of beholding it there. Every quality that can be brought out in the horse to make him more beautiful or useful is receiving, as it should, the thought and attention of his admirers; and he who adds even one quality, is causing "an extra blade of grass to grow," and is therefore a benefactor to his race.

One of the first blows the breeding industry received was the substitution of electricity for horse power. Little did Benjamin Franklin dream of the magnitude or importance of the subtle, invisible and inscrutable power he had succeeded in bottling. Little did he know what a mighty force he had bridled and given its first lessons in harness. From that small beginning, great minds have set to work, and wonderful appliances have been invented until the electrical horse has been hitched to almost every known object to which power could be applied, so that it has supplanted the noble animal in many ways. We thought when cars were first run by electricity, the horse would scarcely be worth raising, but what has time revealed? That the class of horses that worked on the cars are now used for delivery purposes, and that electricity as used on the telephone, creates as much use for the horse as it robbed him of on the car lines, since everything we buy in the city may be delivered, even to a paper of pins or a spool of thread. So much is ordered by telephone that the loss to the breeder from that source is much less than at first it was expected to be; besides, it is a question in my mind, whether enough horses could be produced and maintained to supply power for the already large and ever-increasing demands of the growing street car systems.

Next came the bicycle, and many thought that a heavy blow to the horse industry, but the horse kept plodding on, the bicycle became cheaper, until, I think, it takes the place of but few horses. A few years ago the automobile came into existence and men predicted that to be a killing blow to the horse business. Five years ago, I was told it would only be a year or two until most of the work done by horses in the city would be the work of the automobile. What is the fact? Horses bring as high prices now as at any time in the history of the country, and the fact is, the invention has scarcely supplanted enough horses to make it noticeable.

However, because of the automobile, it is no longer safe to recommend a horse for family use, and the horse, the real king of the highway, is kept wondering what will next take his place. And I have no doubt, he sometimes thinks the entire body of ingeniously inclined men, are contriving to make things just to frighten him off the earth. But still, the noble animal pricks his ears a little straighter, puts on a more stylish appearance, and nimbly trots off at a livelier pace, leaving men to further test their inventive ingenuity, while he now and then takes a trip into the country to haul a crippled automobile to the hospital.

The last stroke at the value of the horse was in the recent enforcement of the old law against pool-selling following the refusal of the governor to sign a bill, permitting the same in a limited measure. Buying pools may be wrong. The line between gambling and fair legitimate speculation is sometimes quite dim. I often wish I could draw the line in all cases; but right or wrong, I cannot see the consistency in stopping the selling of pools on horse races and then permitting wholesale betting on future prices, ball games, and, most demoralizing of all, on the elections. I believe that if pool-selling should be stopped on account of it being a sinful speculation, then by the same test a large proportion of the speculative business of the world ought to be suppressed. I may be wrong, but I hardly think matters of simple right and wrong, ought to be met by state law. God's laws cover them, and Christianity is the logical opponent of wrongdoing, or sin. So far as I have studied Christ's teachings, they are not so much devoted to instructions as to what we should permit others to do, as to what we should do, ourselves. It is wonderful how ready we are to reform the other fellow.

But if it is wrong and the people decide to suppress pool-selling altogether, the loss to the breeder will only be temporary. Such tracks as the Cleveland track can hardly be kept up, but devotees of the horse business will still continue to use the speed of the horse. Boulevards and speedways will be built in time, in all the cities and towns, where wealthy men of business or the professions, who pay high prices for the good ones, can enjoy a spin behind the king of the road. What an exhilarating recreation it is. Many a weary, overdone, hard-working man, has found health in the spirited brush of the speedway. That market which is always good, will continue to grow better and the breeder of light harness horses of the right kind, will continue to flourish and prosper as never before.

If it is speed you want, America furnishes the best specimens the world produces, and the world is her market. If it is the draft horse you are after, America is already finding a market abroad, although it has been but a short time since we got our best blood from Europe. American brains will soon place that branch of the business at the front, until the American draft horse captures the world for its market. As long as the price of a horse can reach the fabulous sum of two hundred thousand dollars, as long as the child prefers the story of "Black Beauty" to the daily accounts of the death-dealing automobile as long as men love the horse as one of God's creatures, so long will he continue to be man's most useful animal friend, so long will his production be a source of profit.

"PROFITABLE HORSES FOR FARMERS TO RAISE."

BY FRANK BALYEAT, CONVOY, OHIO.

[Read at the Farmers' Institute held at Convoy, Van Wert county, January 17 and 18, 1906.]

There are several styles of horses that sell well at present and in the breeding of any of these farmers may, under favorable circumstances, engage with a fair prospect of finding the business profitable.

First and highest priced, are the very fast trotters, pacers or runners, but these very fast ones are not produced with certainty by even the most experienced breeders, with the best of breeding stock to work upon and the best of trainers to develop them. There is a fascination about it which attracts many gentlemen of wealth and leisure, to the business, the question of profit and loss being with them a secondary consideration; it affords them enjoyment and recreation and it is indulged in mainly to that end, and in such hands the breeding of horses for speed alone should be left, but we think the common farmer can produce some of the very finest types of road horses by making it a point to breed their road mares (and every farmer has one or more road horses on the farm to do his driving), to a well bred, high class individual of good size and possessing a great amount of intelligence or good horse sense, as we usually term it; a horse of this type finds always ready sale if he is not ill-tempered or of a nervous disposition.

If draft horses are desired, select breeding stock from some of the best established draft breeds. The distinguishing characteristics of weight and strength—which are the chief essentials in a draft horse—are quite firmly fixed in the Normans, English Shires, Clydesdales and Belgians, imported to this country from Europe; however much they may differ in other particulars, they may all be relied upon, with a fair degree of certainty, to reproduce their kind when judiciously coupled, but to this must be added docility, soundness and endurance. Given all these qualities, and then the more action and style the animal possesses the better; he may be in possession of all these characteristics except the first, but being deficient in that he is not a good draft horse. On the other hand, he may weigh a ton, but if he is ill-tempered, unsound or lacking in endurance, his value is materially lessened. He may possess all the good points above enumerated, and yet be so deficient in energy and so heavy and sluggish in his movements as to come very short of a perfect draft horse. Each of these qualities being desirable, it follows that the horse possessing all of them in the highest degree, is the most desirable one. We do not propose to enter into a discussion as to the comparative merits of the various draft breeds; all have crossed well with our native mares, and all have marked substantial improvement, at least in the size of our draft stock, and some of the best results have been attained by a mingling of the blood of two or more of these imported strains.

A critical horseman, one of the best authorities of all writers on the horse, a highly educated Englishman, whose estimate of an animal was always made from the standpoint of general excellence, the late Henry William Herbert, in his exhaustive work, "The Horse of America," says:

"The points of the physical structure of a horse on which the most, indeed the whole, of his utility depends are his legs; without his locomotors all the rest, however beautiful it may be, is worth nothing, therefore to these we look first. The shoulder should be long, obliquely set, with a considerable slope, high in the withers, the upper arm should be very long and muscular, the knee broad, flat and bony, the shank or cannon bone as short as may be, flat, not too round, with clean firm sinews, the pastern joints moderately long and oblique, but not too much so, the hoofs firm, erect or deep, as opposed to flat, and the feet generally large and sound."

We also think that a horse should be perpendicular from his hind knee to the ground, so that you may pass a straight edge from his hip to the ground, touching the points of hock and pastern, forming a perpendicular, and getting the exact height of his hip; then place the straight edge in front of the foreleg and you should have a little greater height at the withers than at the hip. You should take the height at the hip as the average height and then pass your straight edge from top to rear perpendicular measurement and pass it horizontally to the front perpendicular line and if you have a square, or as near a square as possible, you have an animal that is not clumsy, whether he weighs one thousand pounds or a ton, as he is a well balanced horse. If this rule is kept in mind you will soon be able to detect the good and bad points with the naked eye.

The grand preparation of live stock for market has been reduced to scientific principles. Demand has largely shaped the destiny of the live stock industry and feeding for market has become a paramount feature of modern husbandry. Fashion has changed materially in a decade in regard to the condition of live stock that is expected to reach the highest level of values when negotiated in the open market. We have our Christmas beef and mutton that represent the highest achievement of the feeder's art. Visitors at the wholesale markets are impressed with the high condition of horses that reach top prices. It is but a few years since dealers avoided horses in high flesh, as illy suited to perform the heavy work incident to trucking in the cities. Today a specialty is made to smooth the conformation of all classes of horses by stall feeding. Commercialism calls not only for heavy draft horses with bone and symmetrical substance, but turns aside if the animal is in medium condition. The fashion of paying exorbitant prices for horses was established by export dealers. It was discovered that horses that were in high condition when exported, reached their destination ready to sell on the block, while horses in thin flesh when shipped required weeks to recuperate and attain prime market condition. It is a great loss to farmers to sell their horses when in low condition; a fat horse is prized by a dealer as highly as a fat steer is by a butcher. The farmer when he markets thin cattle expects they will sell in the class of stock cattle or for feeding, and the same fact holds good in marketing thin horses; they are bought by feeders and sent back into the country to be stall fed for the market.

The farmers of Van Wert county can produce feed cheaper than the commercial feeder can purchase it after being transported. The farmer who finishes his horses for the best trade, makes a home market for his surplus feed at the greatest possible profit and is always pleased with prices bid for his finished horses. Under present conditions, the farmer who cannot make money raising good draft horses need hardly expect to make it at any other branch of farming.

There is one rule that should be invariably followed in breeding horses, or any other kind of stock, that is to always breed to something that is an improvement on what you now have.

While we were attending the International Live Stock Exposition at Chicago in December, we were impressed with the fact that it was not only a fat stock show, but a great school of instruction to those who wished to avail themselves of the opportunities offered. While sitting in that large amphitheater watching the passing of awards by the most competent judges of the land, one is reminded of the different institutions of learning. We do not hear the sound of voices but by close observation we get the judge's ideal of the highest type of horses in his class. Therefore we would advise any farmer who is interested in stock breeding of any kind to visit this school of instruction at Chicago each year and not to try to take in everything that is shown, but confine himself to that in which he is most interested and watch the passing of awards through the entire class that he is interested in. He will receive more instruction than he can get by reading all the books obtainable, and will go home with higher ideals of stock breeding.

"PROFITABLE HORSES FOR FARMERS TO RAISE."

BY J. M. FRISINGER, DECATUR, INDIANA.

[Delivered at the Farmers' Institute held at Convoy, Van Wert county, January 17 and 18, 1906.]

In speaking for farmers in this section, and in fact farmers in any agricultural district of Ohio, the Middle West, or any of the western states, we will take the position that the only profitable horse for these people to produce is the draft horse, and that while here and there a man may be able to succeed with some other class of horses, yet 75%, yes 90% will be much more successful by confining their energies to the production of draft horses, and their success in this line will in a great measure depend upon the care and consideration given to sires at the time of breeding. We are well aware that not every farmer has a pair or more of first-class draft mares to begin with, but he should therefore in mating the mares he does have to be all the more on his guard as to the sort of sires. I would say that my county, and by the way, it joins your own county on the west, is away in advance of any other county in the State of Indiana, and I believe her second to none in your own state, in the number, quality and value at this time of the good big draft geldings and mares that are there produced and sold all over the country, even in the great western states. Our farmers have adopted this rule to breed every mare, however small, with any draft blood in her veins, to the best and weightiest stallions to be had.

We have really no American draft horse. Our stock is composed of an infusion of the bloods of the various breeds of the old country, and while we have some distinct and pure breeds, yet they are either French draft, Percheron, English Shire, Clydesdale or Belgian.

Were we citizens of either of the above mentioned draft horse breeding countries we would prefer the horse that our own country produced. The Englishman believes that England produces the only draft horse in the Shire; the Scotchman believes likewise in his country's selection, the Clydesdale; the Frenchman is content to know no other horse except the Percheron or French draft horses, while the people in Belgium swear that no draft horse can begin to compare with their Belgians, and well may they believe this, for they point with pride to that world's great exhibit at Paris in 1900, when all the known draft horse producing countries came together and vied with each other to create a new era in this especial industry and as we all know, started the twentieth century by winning grand sweepstakes over stallions of all ages and from all competing countries, also did likewise on Caline the Second, a mare that captured the grand sweepstakes prize; therefore I would say, that while I am not here to tell you which is the best breed for us to patronize, yet the Belgians have a pretty solid foundation on which to stand and claim that all others must tip their caps to them.

I would say that inasmuch as but few of our farmers have the pure bred mares, than an infusion of any of these bloods with our grade mares brings good results. I believe that it is better, however, to cross our mares with Normans or Belgians, as the English breeds are not in as good demand as some others, and I am speaking in a commercial way. In proof of my assertion that draft stock is more profitable, I would simply say this, that in my neighborhood there are no less than thirty draft stallions in the service (exclusive of our barns) within a radius of eighteen or twenty miles, and our farmers find for the product a ready sale from the time the weanling is taken from its mother's side until it is a grown animal. Through the months of the midwinter buyers and speculators are scouring the country seeking these good draft colts paying for sucklings from one hundred dollars to one hundred and fifty dollars and Ohio feeders are in our vicinity every week seeking those from thirty months to four years old and paying extra prices for the best ones, some selling as high as three hundred dollars and even more. Nearly every farmer can use two mares on his farm, however small, with as much profit as the same number of geldings, and save the help of one man. These mares will perform all the labor that a pair of geldings will on a farm, at least as much as any one man cares to pile up or get over in a day and raise a pair of colts besides, and when these colts are given just a trifle extra care, they will bring at weaning time one hundred dollars each or even more.

I am of the opinion that a good horse is the nearest of kin to man, even nearer than the faithful dog, I believe that farmers should hold only their wives and children in higher esteem than the horse, for we know of what service he is to mankind, we know how familiar and friendly he learns to become and how he will greet you every time you meet him, how the little colt of only a few weeks growth will follow the boy or little girl across a pasture lot only to receive one or two loving strokes on his back, how fine and lofty he will hold his head when you drive him along the thoroughfares with a load behind him, if he is clothed with a nice set of polished harness, how he will prance and dance to the music when you bring him in sound of martial music, how he will endeavor to outstrip some other neighbor team who may be out with a brand new set of harness.

I would add that there is not only rare profit in producing fine draft horses, but there is much pleasure connected therewith. I always imagine when I see a farmer sitting behind a fine pair of good big geldings on the streets of our city that he is looking out from the corner of his eyes in order to see whether Jones or Brown is in sight.

We find again as we have before stated that prices are high on good stock, and I wish to state here that we need not fear another panic in this industry like the one we passed through in the early nineties. First, our commercial relations are not so easily disturbed and when a cloud does appear upon the financial horizon, our laws are better, and our men are much better advised and thus avert anything so terrible. Again in the second place the panicky prices that existed twelve or fifteen years ago caused some of our people to look for a new way out of the chaotic condition into which our horse market, like all other branches of industry, had fallen. I, for one, conceived the idea that Europe with her very high priced land could not grow horses as cheaply as our American farmers, therefore we started a business that not only rid us of a surplus lot of stock that we had no market for, but brought within fourteen days the markets of the old world to our door yards.

We all know that horses are very high in price and the farmer asks himself and the dealer the question how long can we expect such prices to maintain themselves. It is impossible for any man to read the future, yet we need not fear much reaction in price on good heavy horses for some time yet.

If draft horses were to depreciate 25% from their present values they would still bring in a good profit, more, I firmly believe, than almost any other branch of the stock industry. Again were they to drop say 25% or more we would be able to export them with assurance of good results, therefore I should say that there is no danger of their going below a price at which good money can be earned in growing the good ones. We must not forget the fact that our lands have in the past year or so advanced nearly one-fourth in value, therefore it behooves us to study well our situations that we meet the extra expenses, taxes, etc., that as a natural consequence present themselves.

In presenting these few thoughts to you for your consideration, I would say again that I am not advocating any particular breed of draft horses, as in purchasing one I never ask what stock it is if the animal is a good one. I would add, however, that in selecting your sires, you should not allow yourself to make the mistake of choosing some cull because of friendship or for the sake of saving time, but take the time if it requires you two whole days to reach an extra good one. You will never regret that you acted so wisely at that vital moment.

"BREEDING, FEEDING AND CARE OF STOCK."

BY E. H. URTON, CLARKSVILLE, OHIO.

[Read at the Farmers' Institute held at Clarksville, Clinton county, January 1 and 2, 1906.]

The breeding of pure bred stock is certainly the highest calling in agricultural pursuits, and one of the most intricate of all the problems to solve in this vocation, therefore it needs the deepest thought of the greatest minds. No subject ever attempted by man is greater and more subtle than that of breeding, of creating something definite at the behest of our will. It is acknowledged by the most expert breeders, that they are as yet mere apprentices in the workshop of creation. The basis upon which breeders of pure bred stock work is that "like begets like," but this method so often fails that we become mystified and wonder at nature's intricate workings and often give up in despair, but while this method often fails it has many successes to its credit. In view of the fact that we know of no better method than to proceed in the assumption that "like begets like," I will suggest that we continue along that line, but be always ready and liberal enough to listen to new ideas and suggestions that appeal to our reason, even though they deviate from this line of thought, and let us hope that by persistent effort along well beaten paths, we may sometime reach the goal and the breeders' dream will be realized in the perfect specimen. The breeder, the man who aims at the reproduction in succession of the best specimen, enjoys this one of nature's puzzles, for no one loses any thought over the offspring of the scrub, the result of neglect, hardships and careless mating. It is when we attempt to forestall the result that we become significantly impressed with the subtilty of nature's work. Summarizing experiences, we critically inquire whether "like" is a real entity or an ensemble of entities, of various qualities opposed to one another; more than likely the latter is true; individuality, therefore, can only be something component or resultant, a compromise of entities easily disturbed and subject to immediate readjustment; to dissolve and analyze this "like," to separate it into its component entities, would probably solve the problem of breeding at will, of producing perfection; it is perhaps vain to even wish that this work will be accomplished soon and yet the experiments on artificial fertilization of Professor Loeb of the Leland Stanford Jr. University are along this line with some degree of success, and while it may seem that we are aimlessly floating about on the vast ocean of possibilities, owing to the fact that we seldom produce our ideal type in our breeding operations, we should not be discouraged, for in the past century of experiments we have made wonderful progress and have produced some noble specimens with the animals entrusted to our care; and while we should feel meek, knowing that the views held valid and sacred today, are subject to revision, and that the absolute good has not yet been produced, yet let us take courage in our small beginnings and keep faith in our own efforts.

The constructive breeders, for instance those of the shorthorn fraternity, who sought the development of an improved type and persistently pursued that line of work did wiser than they knew. The first importation to this country of shorthorns was made in 1783 by Mr. Miller, of Virginia, and Mr. Gough, of Baltimore. These men no doubt had in mind the bettering of conditions in developing an improved type of the breed, and probably had no thought that the results of their toil would receive the plaudits of the world, and would culminate in notable events, the most marked of which was one of international fame, bringing together bidders from both sides of the ocean. This event, one of the most notable of all pure bred stock sales ever held in any country, took place at New York Mills on September 10, 1873, and was known as the New York Mills sale. It was an international contest for possession of the best "Bates Duchess" shorthorns, and one hundred and ninety-eight head sold for the enormous sum of three hundred and eighty thousand, four hundred and ninety dollars, an average of one thousand, nine hundred and twenty-one dollars and sixty-six cents each. Two of these animals, the Eighth Duchess of Geneva and the Tenth Duchess of Geneva, sold for seventy-five thousand, six hundred dollars, the Eighth Duchess of Geneva selling for forty thousand, six hundred dollars, and the Tenth Duchess of Geneva selling for thirty-five thousand dollars. In the face of such facts, the occurring of such an event in our own time and country, does it pay, may I ask, to devote our time to the improvement of the breeding of our domestic animals? I believe such an event acts as a stimulus to every man that has at heart the development of an improved type of domestic animals for the use of mankind.

Let me cite a practical illustration of what proper breeding will do: During the month of September last year two carloads of cattle were sold on the Chicago market; these cattle were all two-year-olds; one carload was composed of scrub cattle which weighed about eleven hundred pounds each, and sold for three dollars and fifty cents per hundred, bringing about forty dollars per head; the other carload weighed over fourteen hundred pounds each and sold for five dollars and ninety cents per hundred, bringing about eighty dollars per head. These two loads of cattle were about the same age, were sold on the same market, the same day, and the wide difference in the prices obtained for them naturally provoked inquiry as to the cause. The owner of the good cattle answered thus: "My cattle are the product of a two-hundred-dollar sire, and the others of a thirty-dollar scrub sire." It is all a question of breeding, feed and care and these practical market results prove that it pays to observe them in the strictest sense; the trouble is that often these practical lessons go absolutely unheeded; it so often happens that the things we do we cannot afford to do and the things we can afford to do we do not do. My friends, you can no more afford to feed your corn, worth forty cents or fifty cents per bushel to scrubs than you can afford to give me five dollars for three dollars, and if I should ask you to do that it would be an insult to your intelligence yet my own observation teaches me that a majority of the people are contributing to just such results by feeding the products of their farms, the results of their toil to scrub stock. If you ask for the remedy from such evils I will suggest the use of pure bred sires, systematic feeding and diligent care; these are absolutely necessary points to be observed if we are successful in breeding. The law of compensation is described as being that tendency of all things to equalize themselves and this is expressed in the idea that there can be no gain without loss and no loss without gain that what we call improvement is simply a change in the qualities of an animal. When we produce an animal of the beef type whose meat is tender and juicy we have also cultivated a more delicate constitution and in a measure robbed him of the power to endure hardships, hence the need of better care. The term improvement is relative, it relates only to the animal viewed from the standpoint of man; like our crops, the better care we give him the more profitable he is to us; you can no more expect profitable results by neglecting the breeding, feeding and care of your live stock than you can hope to succeed if you plant your crops and neglect the cultivation of them.

With twenty-thousand foreigners landing on our shores every week, with rapid increase in our population, with a heavy foreign demand for our produce, values will naturally increase, consequently we will have to study every phase of stock breeding and feeding in order to secure profitable results for the necessarily higher priced products of our farms in the future. It has been clearly demonstrated by experiments at our agricultural colleges that one of the things that will materially aid us along this line is the proper preparation of our stock for market while it is young, for the older an animal is, the more food he requires for a given gain. The Central Experiment Station at Ottawa, Canada, found by comparing one thousand pounds of live weight in the case of calves, yearlings, two-year-olds and three-year-olds, that the profit for each one thousand pounds was, calves thirty-one dollars, yearlings twenty-seven dollars, two-year-olds nineteen dollars and ten cents, three-year-olds twelve dollars and eighty cents, and when cattle of all ages were purchased at four cents a pound and sold fat at five cents a pound, the profit on one thousand dollars invested was, calves five hundred and fifty-seven dollars and fifty cents, yearlings two hundred and eighty-four dollars, two-year-olds one hundred and ninety-eight dollars and seventy-five cents, three-year-olds one hundred and seventy-seven dollars and fifty cents.

Alfalfa as a rough agent I believe will do more to increase the profits in the raising of live stock than any plant yet discovered, on account of its high feeding value; the Kansas Experiment Station recently conducted a very interesting experiment, testing the feeding value of alfalfa with cattle. During the preliminary period the cattle were fed a small amount of ear corn, so that at the beginning of the experiment they were put on a ration of eleven and eight-tenths pounds of ear corn per day each, one lot was given alfalfa alone as roughage, while the other lot was fed alfalfa with other roughage, both lots receiving the same amount of grain. During the first month, the steers fed the variety of roughage made an average daily gain of three and fifty-nine hundredths pounds, while the alfalfa fed steers gained four and forty-one hundredths pounds each daily, the second month those fed a variety of roughage made an average daily gain of two and twenty-seven hundredths pounds, while those fed alfalfa as the sole roughage made an average daily gain of two and eighty-one hundredths pounds in the five months of the experiment, those fed the variety gained daily two and thirty-two hundredths pounds, while those fed alfalfa gained daily two and eighty-three hundredths pounds. Feeding alfalfa alone, with grain, required five hundred and seventy-eight pounds of grain to make one hundred pounds of gain, feeding other forms of roughage with grain required seven hundred and fifteen pounds of grain to make one hundred pounds of gain; as the amount of roughage for one hundred pounds gain it required only four hundred and fifty-four pounds of alfalfa against seven hundred and forty-two pounds of other forms. These results are greatly in favor of feeding alfalfa alone with grain, as it required 21% more grain when other forms of roughage were used to produce one hundred pounds of gain. These tests clearly demonstrate that a close study of the feeding value of the products of our farms will greatly enhance our interests.

I claim that the breeders are the price makers of their own stock. If they produce good animals they realize good prices, and if they produce scrub stock they realize low prices, and if they will spend the same amount of time in learning how to breed, feed and care for live stock that they spend in finding fault with the markets they will be able to produce a better class of stock and realize better prices. To those who are earnestly engaged in it there is no more satisfying, no more dignified calling than that of raising pure bred live stock; there is a lesson of culture in it, for no one can have in his mind and his heart the production of the pure and the best unless he is possessed of culture and refinement, and aside from the pecuniary advantages to be gained from it, the higher motives are noble traits to bequeath to our posterity. The highest form of art is that which deals intelligently with the ideal type of animal life, it is the deepest of all mysteries of physical existence, and demands the deepest thought of the greatest minds. Let me conclude by saying, that we shall improve the breeding of our domestic animals just in proportion to our intellectual development, and that we shall progress in any calling just in the same proportion as we mingle intelligent thought with our labor.

"SHEEP VERSUS DOGS."

BY J. D. VAN WINKLE, HILLSBORO, OHIO.

[Read at the Farmers' Institute held at Hillsboro, Highland county, February 9 and 10, 1906.]

Our domestic sheep are supposed to have originated from a species of wild sheep found in Asia, Europe and Africa.

They were the first animals domesticated, at least we suppose so, for we read of the sheep and shepherds in the earliest history of the world. Go back to the history of Abel, Abraham, Jacob or David, we find they were all keepers of sheep, and at the birth of Christ the shepherds tending their sheep were the first to herald the coming of the Saviour made known to them by the angels.

At that early age the flocks supplied their owners with food and raiment, and this was all that was needed to fill all their wants.

Thus the first men became shepherds by the mere force of circumstances, and it is interesting to note that this mode of living, or of supplying the necessities of life, has been followed through all the past ages down to the present; it seems to be an unavoidable result of the necessary relations of the sheep to the human race, that the flock under whatever condition both may exist must always be a profitable possession of mankind in spite of all difficulties that may arise in their keeping.

From history we find the sheep has always been considered a very necessary animal and highly prized. Stewart, on "Domestic Sheep," says that a shepherd of the time of Tiberius Cæsar is recorded as giving a sum equivalent to five hundred dollars for a ram, and in more modern times we find that kings and emperors thought a present of a fine ram and a bunch of ewes, a worthy present to give or receive.

We might learn a lesson from England; when she monopolized the woolen manufacturing business of the world she protected the sheep and woolen manufacturer in the strictest manner. She made it a felony, punishable by death to export a sheep, and the introduction of foreign wool was entirely forbidden. I do not mean that this country should be so strict as that, but I do think the sheep industry should be protected with more stringent laws than at present. England's strict laws showed the great value placed on the interest of the shepherds and was one of the methods by which the empire has attained its vast power, and its citizens their enormous wealth.

I will not say in this paper just what legislation we should have in the interests of the sheep industry, but will endeavor to show some reasons why I think there should be more stringent laws for protecting the sheep from the injury done by the dog. Randall, in "Practical Shepherds," says: "The dog is justly a favorite animal with man, but on the whole, on summing up the advantages and the disadvantages which he produces to mankind and especially to sheep growers, there can be no doubt that the balance is enormously against him."

What will it cost to keep a sheep one year and raise a lamb? Twenty-five cents per month, or three dollars per year will pay for keeping an open wool sheep; she will raise a lamb worth, when five months old at five cents per pound, four dollars, and will shear six pounds of wool worth thirty cents per pound, or one dollar and eighty cents, making five dollars and eighty cents or a net gain of two dollars and eighty cents per ewe.

Now, how many dogs in the State of Ohio will bring a net profit of two dollars and eighty cents per year? Let us see what it will cost to keep a dog one year. Randall has made an estimate. He says fifty cents per week in towns and cities or twenty-six dollars per annum, and at the lowest estimate, ten dollars per annum in the country. There are about as many dogs in towns and cities as in the country, so the average keep of a dog would be about twenty dollars. That would pay for the keeping of six ewes a year that would bring a profit of two dollars and eighty cents per head or sixteen dollars and eighty cents. Now, if these figures are correct, for every dog you keep you are out twenty dollars and the net profit on twenty dollars which, invested in sheep, would purchase four ewes that would yield an annual net income of eleven dollars and twenty cents, making a total loss of thirty-one dollars and twenty cents for every dog; this, without taking into consideration the damage done by the dog which I will endeavor to show.

The latest statistics in regard to sheep injured and killed by dogs, for Ohio, are for the year 1904, and are as follows:

Total number of sheep injured and killed by dogs, thirty-one thousand, six hundred and sixty-six.

Total amount of damage	$96,315 00
Amount of per capita tax on dogs in 1904 collected	156,913 62
Amount paid out of this tax for sheep killed	77,401 98
Amount paid out of this for sheep injured	22,383 90
Amount paid out of this tax for witness fees	7,213 76
Total amount paid out for sheep killed, injured and witness fees	$106,999 64

Number of sheep listed in 1904, one million, seven hundred and eighty-two thousand, one hundred and twenty-one.

Total value estimated, five million, seven hundred and two thousand, seven hundred and eighty-seven dollars and twenty cents.

It will be seen that over 1.80% of the value of the sheep was paid out for sheep killed and injured.

Last year the dog tax only paid fifty cents on the dollar for the damage done to sheep in this county. If the keeper of sheep gets full value for the ones killed and injured, he is not getting value for damage done the flock. If any one in this audience has had sheep killed by dogs, he fully realizes this; a flock will hardly ever recover from the shock sustained by the fright, for the sheep is a very nervous, sensitive animal. A few years ago, I had a flock of forty ewes; the dogs got after them one fall and killed and injured several. I kept the remainder of the flock until the next fall and they had not gotten over their fright, if they saw the shadow of a buzzard or crow as it flew over them they would run as though a dog was after them; any little noise would scare them, and consequently they did not thrive, and I finally sold them at a sacrifice. One of the best sheepmen in the county told me they would never thrive until they were taken clear away; they might then forget their fright.

So we see although the State gives some recompense to the sheep owner for his loss, yet it does not cover the demoralization of the flock; besides there should be no occasion for such recompense. The sheep owner does not raise sheep to be killed by dogs, and the worthless curs roaming the fields should be dealt with just as any other pernicious pest. A sheep-killing dog is as dangerous in a neighborhood as an animal with a contagious disease. He is a public menace which is apt to break forth at any time and destroy the property of unoffending neighbors. Therefore I think the law with reference to animals with contagious disease should apply to the sheep-killing dog.

The law on this dog and sheep subject may be expilcit and very good, but if you kill a dog you must prove that your act was within the bounds of the law, or you are liable for damage to the owner, and this is very hard to do at all times. It is very seldom you discover the dog when doing his devilish work, and, if you do, nine times out of ten you cannot kill him, and not one time out of a hundred can you find the owner. Dogs do not often kill sheep close at home; they have been known to go from five to ten miles to do their work, and if perchance you find the owner, you cannot collect the damage of him, for as a general thing it is the poorer class of people who keep and harbor sheep-killing dogs, so you must go to the county for your pay and perchance get only 50% of your claim.

From statistics we find sheep are rapidly diminishing in numbers. In ten years there has been a decrease of nearly seventy-two million or close to one-seventh of the flocks of the world. In Ohio there has been a decrease of almost one million, and in our county nearly ten thousand. There are many reasons for this decrease; in different countries as in South America and portions of the United States and others, the grazing lands are gradually being turned over to tillage, but in other places, as our own state and county, I see no reason why the decrease should be except on account of the dog pestilence.

On the other hand, it appears as though the damage done by dogs is on the increase as compared with the number of sheep, as the following table will show:

In 1896 there were killed and injured	43,959
In 1898 there were killed and injured	30,114
In 1900 there were killed and injured	40,974
In 1901 there were killed and injured	41,628
In 1903 there were killed and injured	29,956
In 1904 there were killed and injured	31,666

Taking the county in 1904, there were killed and injured six hundred and twenty-three. In 1896 there were killed and injured four hundred and six.

In the county in 1896 there were one thousand, four hundred and twenty-four dogs. In the county in 1904 there were two thousand, nine hundred and forty-seven dogs, or more than twice as many, but to account for such a large increase in the number of dogs it may have been that they were not given to the assessor as well in 1896 as last year, but undoubtedly dogs are on the increase and so will their damage be.

I know of no reason why the sheep should not be on the increase in the State of Ohio, except for the dog, for mutton is demanding a better price than ever in the history of the state, and wool is higher than it has been for years. So it behooves us to have our laws enforced more stringently for the protection of the sheep or devise something better.

Now, the damage done to sheep is not all the trouble the dog is giving us.

Hydrophobia, or rabies, occur in all of our domestic animals as well as in man, and from best authority it is almost always caused from the bite of the mad dog.

The Ohio State Agricultural College Bulletin No. 1, on rabies, says: "The dog, from the fact that it is usually at large and has complete liberty of moving about from place to place and from farm to farm, is the agent that is chiefly responsible for the spread of the disease."

During the last year rabies has become increasingly prevalent among the live stock on Ohio farms. The disease has been observed in nearly every county of the state; within two weeks outbreaks occurred on nine farms in a single county. The victims include not only horses, cattle, sheep, swine and dogs, but human beings as well. I failed to get any statistics on this subject; but the bulletin states that the State loses thousands of dollars a year from this disease. I could not obtain any information as to the extent of the disease in the county, but there were several cases last year of hogs, cattle, sheep and dogs and one child.

The bulletin says: "The most important thing in the control of rabies is the proper handling of the dog question."

As long as the county is full of dogs, whose owners permit them to run at large without proper muzzles, rabies will continue to exist. In countries where rabies were alarmingly prevalent in former times the disease has practically disappeared since the law preventing the uncontrolled roaming about of the dogs has been enforced. The bulletin also advised that some measures be taken to stop the roaming of the dog at will in this state and recommends muzzling all dogs, and says if it were done for one year it would put an end to the disease.

If muzzling the dog for one year will exterminate hydrophobia, why not try the same for stopping the killing and injuring of sheep by the dog? Muzzling is no hardship to the dog; he can drink bark and have free use of his mouth, except to bite.

Now, in conclusion, I would say, we do not want a law that will merely provide sufficient tax to pay the loss sustained, for we are not keeping sheep to be killed or injured by the dog. We want a law that will absolutely prohibit the damage being done; and I see no reason why we should not have it. I would suggest a law requiring every dog to wear a collar with its owner's name engraved upon it; the dog also to be muzzled or kept on the owner's premises; if found away from the owner's premises without being muzzled or led by a chain, the owner to be liable to the same fine as if he allowed an animal with a contagious disease to run at large.

"HOGS."

BY H. M. BROWN, HILLSBORO, OHIO.

[Read at the Farmers' Institute held at Hillsboro, Highland county February 9 and 10, 1906.]

It is the universal testimony of all men in these days of strenuous business competition and small margins of profit in the meat-producing industry, that good breeding, and intelligent care and feeding, are the key to the situation, and hold good in connection with swine raising the same as in all other lines of live stock production.

The hog is good if he shows a profit to the feeder, when put upon the block; and he is better, or best, just in proportion to the increase of profit, as shown in comparison with other animals, of the same species that have gone before, or that shall come hereafter.

Thus we are striving to improve the breeds most in vogue, or to secure other breeds which, to the fancy of the prospective operator, promise better development and quicker returns; for, as all now know, the nearer one can limit the feeding period to that of natural growth in all meat-producing animals, the greater will the profit be. It then behooves us all to contend for a whole list of characteristics, in the selection of the hogs we will adopt and rely upon to make money sufficient to pay for the feed and labor necessary to put the product upon the market. The list, in part, is as follows: Easy keeping, early development, kindly disposition, prolificacy and healthfulness, together with the greatest possible development of the maternal instinct, which at once brings this paper to a discussion of the breeds that are most popular in this country.

There are four that may be called the principal ones, viz., the Duroc Jersey, the Chester White, the Poland China and the large English Berkshire.

I believe the Berkshire is as good as any of them; and I believe that the Poland China is unexcelled; I likewise believe that the Duroc Jersey and the Chester White are as good as either of the other two; and lastly, I believe that either of the above enumerated breeds, is better than any variety outside of the four named above.

It is true, that each of the four possesses its advantages over some of the others; and it is also true, that in turn each possesses disadvantages that do not belong to some one of the other, which really amounts to just about a standoff between them. And after all, when the problem is seriously considered from every standpoint, I cannot see a sufficient difference to warrant us in feeling much concern as to the name of the breed we possess. But let me now state the important climax of the whole business we are to consider at this hour.

See that the animals you select are good specimens of the breed and then treat them with an eye single to getting the most out of them that there is within the possibilities at hand.

You have all heard about that successful old breeder who, when his young customer expressed a desire to see the dam of a magnificent young animal he had just purchased, took him to the corn bin and directed him to behold both the sire and dam. The principle of the lesson he thus attempted to teach, holds good if the hog is well enough bred to assimilate feed and make out of it pork in paying quantities, but there is no hog well enough bred to make pork out of corn alone, in paying quantities, and that is the important problem before us today; corn is a fattener and should be used for that purpose freely, but, for other purposes it should be used very moderately indeed.

Bran, middlings, rye, oats and other protein products are growers and conditioners, and they also possess sufficient carbo-hydrates to put on flesh, at a limited degree of speed, as the animal develops and becomes mature in bone, in digestive capacity and in constitution, so that when the real fattening period does arrive the machine is perfect and pork can be made out of full feeding of corn at an enormous profit. Not so when corn has been the principal article of diet from the start. Corn is heating and hard of digestion with young pigs. Bran and middlings, rye, barley, oil meal, etc., are adaptable to his digestion and to his needs.

Oil meal, from start to finish, in the raising of shoats, is the second best feed ever grown and the best, up to three months of age, is milk.

The practice of feeding dry corn, and nothing to balance the ration, to growing pigs or brood sows, is but to invite disaster, and I think I am justified in saying that the man who does it deserves failure, loss and defeat. Every experiment ever made has demonstrated that more money was made out of brood sows and pigs, when protein feeds were given; and also that protein feeds given with corn in the fattening of hogs, is the most economical method, no matter how expensive the balancing product may be. It is true that in the finishing last few weeks, with mature hogs, corn and water may be given alone with reasonable hope of fair profit, but up to that period no one is justified in so doing.

There are a goodly number of cheaper feeds that can be used to advantage during the winter season, with growing hogs and brood sows, for balancing the ration, and it will pay any of us to provide them in abundance; for it is surprising how cheaply, and upon what a small area of ground, bountiful crops can be produced, such as pumpkins, until too late for feeding them; then sorghum, alfalfa prepared by cutting in cutting box and fed with slop, sugar beets, mangel wurzels and rutabagas. Roots and sorghum are succulent and nourishing. They keep the digestion in good order and all the emunctories of the organization are stimulated to normal action, thus promoting the physiological functions to healthy performance, during that latent period of the season, when the animal is not rustling for grass and other forage so essential to a healthy existence.

Alfalfa contains almost as much protein as wheat bran, and is a most valuable and cheap nitrate, if properly prepared, for hogs during the winter season.

Of course, corn can be given at all seasons of the year to all ages of swine, but in very moderate quantities to maintain the animal heat; but on no account should the modern hog raiser depend upon it as the mainstay in his feeding operations, except the dry fattening period, just before market time, but for the breeding herd, *never!*

I think it unnecessary to go further into detail regarding amounts and methods. Anyone contemplating a new regime can easily devise a safe and economical plan of mixing the feeds so as to do the most good and yield the largest return for the outlay incurred in the process.

Let me here advise all who would wish to know, that there are other absolutely essential precautions to be taken or all the trouble and expense will but come to naught.

The time when our fathers made money on the razor-back running in the woods, unattended and forgotten all winter long, has long since gone, never to return.

The times are too close, and the means at hand too expensive to risk going haphazard at anything, and in the future our diligence will need be redoubled if we would stay in the procession of progress and maintain our position among the successful men of our craft. So then, do not think of raising hogs without good, warm, dry and clean shelter at all times for all hogs throughout all the inclement weather of the year.

Remember that hogs are persistently subject to vermin and that they will persistently refuse to yield a profit if so infested, and remember also that nothing is so persistent as the vermin themselves. You must absolutely drop all other work, whatsoever, and clean them out again and again until there are no more to be seen, *anywhere*, and then make frequent inspections and be ever alert, never tiring of the smallest detail, if you would succeed to any marked degree. The pens and houses should be cleaned up and disinfected as often as that of the best horses in your possession, and all details of whatsoever kind, that are necessary to success, must be looked after always and forever.

The labor of one man in the field, the year round, is probably worth a maximum of one dollar per day. The average gain in weight of forty hogs per day, on full feed, under the best of conditions, is approximately eighty pounds, or say four dollars; under the worst of conditions the gain would be only nominal, and under medium conditions it would not be over forty pounds or two dollars per day. I maintain that no lousy hog can make more than medium gain no matter what his other advantages may be.

Thus we may charge off two dollars per day loss for lice on forty hogs, which makes, counting Sunday, fourteen dollars per week; and the man, who owns them, not counting Sunday, is making six dollars during the period, yet he fails to see what is going on and sustains the loss; when just one-half hour per week would set him right and stop all the waste, and the cost would be less than ten cents and not over five dollars per year for almost any number of swine.

My experience has convinced me that coal oil, put on with a sprayer, is the most effective way of treating the animal direct, for it can be effectually applied to all the parts of the carcass ordinarily inaccessible by other methods. The pens should be well cleaned at least once in two weeks, the floors limed and coal oiled and new bedding put in equally as often. In short, the hogs should be made comfortable and nothing else will do. Their nests need be only inexpensive shacks, just so they are dry and snug and the animal content. Contentment and ease of mind go a long way with a hog as well as any other animal, and then the owner must also be content and interestedly in love with his business, or he fails.

If you do not like it and cannot cultivate a liking for it *quit it*, the sooner the better, for you will never be a conspicuous success in a line of work that to you is onerous and burdensome.

I am certain that these observations will prove a disappointment to many if the comparative merits of breeds are not, to some extent, touched upon.

I shall, therefore, promulgate some of my convictions without fear or favor or hope of future reward, and I trust you will not fail to scatter them, if you can, to the four winds, in the discussion.

It is well that we all do not see alike and I am thankful, every day, for the prejudices of men, for without them no champions of breeds would appear, and our business would be dull indeed. And let me say right here, that I believe the very best breed to tie one's faith to is the breed that one likes best and fancies most. And I submit, without argument, that man, in general, is not so happy when the fates have immutably fettered him to a companion when another is cherished and yearned for. "It is therefore manifestly out of the question to expect the champions of the various breeds to be pleased with such conclusions as do not accord with their own."

"On many of the points all who have studied the question closely, agree, and on others, of perhaps minor importance, some of us are as far apart as the poles."

It was ever thus and well it should be, for where would be our stimulus if we were doomed to live under a policy of universal harmony? Even the different forms of our Christian religion have their partisans. So also, at times, in politics; and on *ad infinitum* throughout the whole maelstrom of human endeavor.

The Poland China originated in the Miami valley of our own State of Ohio and have, since about the year 1840, been bred pure over most parts of the United States of America. They are the culmination of many admixtures, and no one in authority can be found who will assume the responsibility of saying just what blood lines were employed to build up the product to its present perfect achievement.

They have been called at various times the Magie, the Butler County, the Warren County, the Miami Valley, the Poland, the Poland and China, the Great Western, the Shaker, the Union Village, the Dick's Creek, the Gregory's Creek and the Moose Hog, but now known throughout America, and the wide, wide world for all that, as the Poland China, and many hundreds of thousands of careful, sober, thinking people believe them to be the best pork-making machine in existence.

They are early developers, easy keepers and docile in disposition, possessing, probably the greatest development of ham of all breeds and a great wealth of lard.

They, by comparison with some other breeds, are disposed to be sluggish and lacking in energy to rustle for themselves, especially if corn is at hand to which they are permitted to have free access.

As mothers they are good; for average prolificacy they are less noted than any of the others of the four breeds touched upon in this paper, but, having fewer pigs, on the average, it remains pre-eminently true that they are able to give, to their progeny, a better start in life; and thus the breed may claim, with some degree of confidence, the quality of greater growth very early in life. They attain good size and are beautiful in appearance from start to finish, and, in fact, seem to be the most popular breed, at present, in this part of the country.

The Berkshire is a somewhat larger breed than the Poland China, and has the greatest muscular power and activity of all breeds, which renders them, perhaps, less liable to disease than any other breed yet developed. The sows are unsurpassed for prolificacy, are careful nurses and good sucklers. The pigs are active and alert at birth, and, consequently, less liable to injury in the farrowing pen. Their meat is the best of all hogs, beyond a shadow of doubt, for the table, owing to the great muscular development and smaller deposits of fat, or lard.

The latter statement is correct, beyond peradventure, when the English Berkshire is the subject under consideration, but should be modified, to some extent, if we are to consider the modern lard type of the breed that is gradually being developed in this country.

Our methods of feeding corn, almost exclusive of other feeds, rich in protein matter, will run all hogs to lard, all cattle and sheep to tallow and so on down the line, and the sooner we learn that there are other and better methods, the quicker we will attain the perfection we are all striving for.

Of the four breeds the Berkshire is the best for bacon, and the worst for lard; but he furnishes pork in as large proportion to the feed consumed as any other hog, and is acknowledged by all to be the best grazer.

As these statements claim for themselves frankness, absolute freedom of prejudice and fearlessness in diction, it is but fair for the writer to assert that, in his opinion, the best farmer's hog is a cross between the Berkshire boar on one side and the Poland China sow upon the other; and at the same time, it must be said that a cross between any of the breeds, if made with good judgment as to individuality and fitness of their mating, will leave nothing to be desired; and, in many individual cases, it will fit better to use the red sire or white sire, or females of those breeds, as the circumstances seem to demand. The breeder himself must work out the problem to his own satisfaction, based upon thoughtful reflection, but never in a casual hit-or-miss spirit, without a definite aim and steady unwavering purpose for a particular result, which, when attained, is one of the greatest of the breeder's art. In my present state of feeling, I would rather be the breeder of an animal that would excel all others than to occupy the highest office in the power of our people to bestow.

I cannot leave this part of the subject without saying, that in the selection of sires for crossing purposes, the Poland China also has a very important following, who claim for him superior merit over all others, and who say that the sows may be of any breed if only the sire is a Poland China. And so every breed has loyal advocates for both sire and dam for the important foundation on which to build a cross breeding.

However this may be, I believe it true, as a general proposition within proper bounds, that the first cross between pure bred hogs, of different breeds, produces better animals than either of the foundation animals, but they must be pure bred and the crossing must not go any further, for deterioration and progress toward scrubdom immediately begins, and from thence is the source of all backward movement in our breeding operations. Likewise is it so when inbreeding in pure specimens is practiced to any considerable degree. But here, again, we must acknowledge that the very thing we advise against is the thing to which the great and celebrated herds of the world have owed their supremacy pre-eminent and undisputed by all.

But inbreeding in the early days was practiced by men of transcendent ability along those lines, and with material that had not been weakened by previous attempts of the same character, by less capable "*masters*" of the art. If, as has been successfully done on many most celebrated occasions, one wishes to accentuate a particularly outstanding good trait of a family, inbreeding may be practiced, if the same good traits are not already the result of that very method; and, too, one must be certain that that same family does not possess outstanding bad traits which will also be accentuated by the process.

Inbreeding is a two-edged sword and should not be wielded by a novice.

If you would take a good Chester White hog and color it to suit, the best of you will call him a Poland China, and a Poland China of good quality, without color, woul pass muster in any company, for a Chester.

I have been observing for years, but for the life of me I cannot see wherein one has much the advantage of the other. They are equally good feeders, much alike in conformation, one is as quiet and as easily handled as the other, and their meat is as much alike as two glasses of spring water.

The Poland China has, we admit, a better development of ham and a somewhat smoother shoulder; but, on the other hand, the Chester is much more prolific, equally good as a mother and given up to be the best pen hog ever produced. The skin of the Chester is thinner than that of either one of the other three and, consequently, more susceptible to the harsh effects of excessively hot sun, wet and cold; but that very fact works to the advantage of the breeder, for, in the case of the other breeds, he is likely to neglect to give the proper attention to his charges, whereas, in the case of the Chesters, he is forced to look after them, thus getting the best attainable results in spite of himself with no more work and pains than is necessary to bestow on any variety of swine in order to get the most profit out of the venture.

If breeders of Chesters would select for heavy coats of hair, much of this trouble would be obviated. The Chester is the most attractive of all hogs, when hung upon the hooks, and is very popular with butchers along about Christmas time for display purposes. The breed is one of the best, the oldest American swine product and has come to stay. It originated in Chester county, Pennsylvania, about the year 1818, when Captain Jas. Jeffries imported from Bedfordshire, England, a pair of beautiful white pigs, which were crossed and recrossed with the native and the Berkshire until it has assumed its present form and character, which is not to be confounded with the more recent product styled the O. I. C., or Ohio Improved Chester, who has in his veins much of the blood of the large white, of Yorkshire, that gives him a rough and uneven outline and undesirable character, so far as relates to easy keeping qualities. The Ohio Improved Chester is only popular in limited districts, and is not as desirable as the so-called Todd strain, of which this paper treats.

The Jersey Red, or as more modernly styled, the Duroc Jersey, is of doubtful origin, having been bred in Jersey for a period of at least sixty years, but has attained his far-famed uniformity of character and splendid development of comparatively recent date. It is presumed that he, like almost all other breeds of good hogs, owes his existence to the ubiquitous Berkshire, which, it is well known, has had a hand in the making of all the porcine families that we are dealing with today. The latter, in his early history, was red or reddish in color. The only other hog of that color being the Tamworth, but at the time of the origin of the Duroc, no Tamworths had been introduced into this country, as he was regarded as worthless at that time; latterly, however, he has developed, and is now bidding fair to rival some of the better known breeds. The most striking characteristic of the Duroc is its preeminet reproductive function. If any breed of the four can excel the others in that particular, the honor indisputably, belongs to the red. In fact, I believe them to be too prolific for the good of the breed. The reproductive function is so prominent in his general economy that it seems to be carried on at the expense of other very essential elements to his success as a profitmaking machine.

Sows that carry to maturity of utero gestation as many as twelve to fifteen pigs and then furnish the nourishment for their subsequent growth, necessarily can only do it at a loss to the constitution of both the mother and her offspring. I believe, therefore, that such large litters should be sacrificed in part to avoid the uneven litters often seen among them.

The principal physical characteristic of the hog question, if properly bred and cared for, is general excellence from end to end and from top to bottom. They are not extra smooth as compared to other breeds, but they are good of ham, shoulder, back and sides. They make plenty of lard, and in fact, are an ideal farmer's hog; and one cannot go amiss if he chooses that breed and carries on the business with judgment in mating, and good sound practical sense in their care.

In conclusion, let me admonish you that there are scrubs in every pure breed of hogs, and unless you see to it that you purchase the proper strains, disappointment will result. I have seen the most extremely poor excuses for hogs among all the pure breeds, and the lack of judgment in selection is, and always will be, the source of failure to succeed with so-called fine hogs.

It has only been a few years since the word Berkshire was a word abhorred by all hogmen in this community, and all because of a poor strain of animals of that excellent breed having been disseminated hereabout. Likewise men will dismiss the word Chester White with a sneer and say, "I will have none of it." The Duroc and the Poland China have had their turn in the estimation of part of the people, and it will ever be thus.

I am a breeder of all the four and a close observer of their qualities, and I say to you, upon mature deliberation, that in the aggregate no one of these breeds has the overwhelming advantage of any of the others, and it is only a question of selection and care between success and non-success in competition with your neighbor, who may breed a different variety than that which you are in possession of.

"FEEDING SWINE FOR PROFIT."

BY SAMUEL M. GARBER, ANKENYTOWN, OHIO.

[Read at the Farmers' Institute held at Ankenytown, Knox county, December 6 and 7, 1905.]

The word "profit" suggests to us the difference between the cost of the animal and the selling, or market price; right here we think is the place to begin, by studying the markets, to find what they demand, when the price is the best or highest and when the lowest. It is an old adage that "history repeats itself." This is also true of the hog market. While no man can tell just how much a pound of pork will bring at any given date in the future, one may safely predict that some time during October the price of hogs will begin to drop off, and unless something unusual happens to either the corn or the pig crop, there will be during three or four months a time when the price will be from one dollar to one dollar and fifty cents or more per hundred lower on the average than the remaining eight or nine months of the year. For example, let us suppose I have an April pig and he weighs one hundred and fifty pounds on October 20th, and hogs are worth five cents per pound, his value is seven dollars and fifty cents, I conclude to feed him another month and at the end of the month he weighs two hundred pounds and I get four cents per pound for him, or eight dollars; eight dollars less seven dollars and fifty cents what he was worth a month before leaves fifty cents. Is that profit? Let us see, a bushel of corn may feed him six days, for the month he consumes five bushels, at forty cents per bushel, two dollars, what it cost to produce fifty cents worth of pork on a falling market, loss on one hog, one dollar and fifty cents. Say we had twenty head, the loss on the bunch would be thirty dollars, or the equivalent of seventy-five bushels of shelled corn at the above named price. I am sorry that I have not the figures to show you how many pounds of pork this corn would produce when fed to March pigs during June and July that had free access to a good clover lot.

The point I wish to make with these figures is, that it does not pay to feed on a falling market, especially if your hogs weigh one hundred and seventy-five or more pounds and are finished or fat and the poultry season at hand. I believe it is wisdom on the part of pork producers to keep out of the market when the fair sex invades it with her toothsome chicken and fashionable turkey, and after the annual flood of both poultry and pork, to say nothing of cattle and sheep, it takes the markets until well along in February to recover their normal tone. Since the market is governed by the supply and demand, and as individuals we cannot govern the price, we would better be governed by the market.

This leaves us from February until some time in October as the most profitable time to sell. Since we have about three-fourths of the year left, we may consult the conditions which surround us to help us to decide when we shall market our hogs. After consulting the experience of other feeders and summing up our own, we decided to have our spring pigs farrowed about the last of February or first half of March, and market them the latter part of September or as early in October, as soon as they are in condition.

Now, we have arrived at the problem of feeding, and there is this difference between the two problems, the one of marketing and the other of feeding; in the former, you remember, we said, that as individuals, we have little or no influence on the market or selling price, but on the cost of growing a hog we are in a very great degree free to use our knowledge and skill to the best advantage, first, in selecting a good breed that will grow rapidly and lay on fat readily, and, second, in giving a generous supply of food, and a portion of it ought to be cheap food, if we expect to secure profit, such as skim-milk or buttermilk or clover, and blue grass or some of the other forage plants of which there are several, and just in the proportion that we can substitute these cheaper feeds, or some combination of them, for corn and mill feed or some of the other commercial feedstuffs, we will be able to reduce the cost of growing a pound of pork. We have never seen the price of corn so high (unless for a very short time), that we could not afford to feed enough of it along with all the skim-milk a pig would consume to keep him in that fine, plump condition that catches the eye of the feeder; nor have we ever seen corn so low that we could afford to feed a pig on an exclusive diet of corn and water, especially if the time was winter, the size of the pen six feet by eight feet, the roof leaky, no window, cracks in the siding large enough to let in wind and snow but too small to let in sunshine, two feet or more of unobstructed ventilation beneath the floor, trough half full or more of water in the solid state, and his bed, both tick and cover, made exclusively of corn cobs. We have all seen such conditions, and most of us have heard of those farmers out on those western prairies who were obliged to burn corn sometimes instead of coal to keep their families from freezing and have thought that was extravagant, but how about an Ohio man burning corn to keep his pigs from freezing? Under the conditions just described, it is practically burning corn.

We advise that every young farmer or beginner that has never done so, keep an account with his hogs for a few years. The cost or value of the feed consumed, together with the first cost or value of the pigs and, after marketing them, determine whether it is profit or loss, and act accordingly. We are aware that it is often a very difficult task to keep an account of this kind, but with us for the first ten years of our married life it was very simple, for we worked by the year, and were obliged to buy nearly all the feed except the skim-milk and the waste from the kitchen, and we soon discovered that when the supply of skim-milk failed, and we were obliged to buy shorts there was no pay in caring for the hogs, nor profit, and after about ten years of this kind of experience together with keeping our hogs in a small enclosure, we decided that if one expected to get any profit from raising hogs, he must find a cheaper food than the commercial feedstuffs to grow the pigs and to balance the corn ration and supply the variety necessary to induce them to consume enough food for that rapid growth which is so essential for profit. As was to be expected, we chose the medium clover for the main supply; first, because of its cheapness, simply the cost of seed and the labor of sowing; second, because it is a balanced ration in itself; third, because it furnished a continuous supply of green food from early spring until winter. After choosing clover for the main forage or pasture this decided the remainder of the problem, for to have clover each year meant a three-year rotation and the fencing of three plots. We commenced by enclosing two plots of nearly one and one-half acres each of cornstubble, one was sown to rye and the other was planted to corn the following spring, and by the time the hogs had the rye and the corn consumed in the fall, we decided to increase the size of the plots to three acres. After four years of hogging down clover, rye and corn we have solved, in a measure at least, the problem of a cheap supply of food, and in addition to this have reduced the labor of feeding and care a great deal; the most of us farmers have learned that labor is expensive, and when we can save labor we reduce expenses, and that increases the profits.

To make our method plain, we will take our pig at weaning time and follow him through the principal changes of his existence until he is ready for market. The time is the first of May; he is getting all the skim-milk there is to be had and the scarcity of milk is made up by the addition of shorts to balance the corn ration. He has the run of last year's clover plot until it is plowed for corn and then he is allowed to run in the last year's seeding of clover, and by the time the clover is heading the shorts can be omitted; then, if he has been properly fed and cared for, he will consume large quantities of the clover. We are careful at this time to feed just enough corn to keep him plump but not make him pot-bellied, which an exclusive grass ration will do, but which must be avoided if he is to be ready to top the market when we had planned. About the tenth or fifteenth of July we turn him into the rye. We prepare him for this change by cutting some and feeding on the clover lot for a few days, gradually increasing the amount, thereby avoiding abrupt change of diet; waiting until the rye is straw-broken gives the clover a chance to grow stronger and narrows the gap between the rye and the new corn which must be filled, by old corn. As soon as the new corn begins to dent we go through it and break off the ripest ears and feed on the rye or clover plot, and if the rye has not been sown in the corn before this it must be sown now before the hogs are turned into it. We sow about two bushels per acre with a one-horse drill. We time this so it will be out of the way when corn-cutting and seeding arrives, and we increase the amount of the new corn fed in connection with the old until the pig rejects the old. Then he is ready to be turned into the new corn and is allowed to run in either the clover plot where he has been or on the rye plot which he has harvested and which at this time is covered with a fine growth of clover. For the next three or four weeks he needs but very little attention, and this comes at a time when we are very busy cutting corn, harvesting clover seed and seeding our ground to wheat. My boys begin to inquire two or three weeks ahead when that corn will be ripe enough to turn those hogs on. You may depend on the boy to find the easy way. There is another advantage that had not occurred to us when we planned this method, it is that we have at this time the use of all three plots just when we need them most, for at this time the brood sows with their young need the clover pasture of the other lot, and we have it so arranged that they can get pure water at all times during the summer.

By these menas we have been able, in some degree at least to solve the problem of growing swine cheaply. First, by producing nearly all their feed on the farm and having a variety at all times; second, by having it so arranged that they not only feed themselves, but harvest the crop as well, so far as we can; third, by changing them from one lot to another and plowing each lot every third year, thus solving the important problem of sanitation to a great extent.

As what we have said applies entirely to summer feeding, and as we do not wish to consume too much time, we shall say but little about winter feeding. We plan to keep as many shoats besides the brood sows as can readily consume the milk and wastes, in the stables and barnyard. They have the run of the barnyard, which is covered deep with stalks, straw, etc., and they are fed the leaves and heads of the clover that accumulates where the hay is thrown from the mow. If this does not seem to satisfy them, they get some of the choicer portions of the hay to supply as far as possible the lack of pasture. Wood ashes and salt are kept where they can get them at all times. This last item applies to summer feeding as well. Keeping the cement floor of the houses and yards well covered with straw adds to their comfort and increases our supply of manure which is often entirely lost. Handled in this way, the often despised porker can be made to supply meat for our tables and shortening for our pies and cakes, to lift the mortgage from the farm and leave a surplus for the upbuilding and support of those institutions of learning and religion which were intended for the uplifting of humanity.

"HOGS AS MONEY-MAKERS IN AMERICA."

BY F. M. DAVISSON, WEST MANCHESTER, OHIO.

[Read at the Independent Farmers' Institute held at West Manchester, Preble county, February 14 and 15, 1906.]

The English tell us that among the stock raised for food the hog occupies the third place in importance; first cattle, then sheep, then swine, but for all that, they consider the hog an animal of great profit and easily produced. In America we consider the hog as taking the first rank, especially in the great corn belt of the United States, where he outnumbers any other class of stock, principally because of his prolific nature and quickness to fatten and mature for market. In fact, a man on a small farm can raise more hogs than any other class of stock, owing to the varieties of feed that they will consume.

In this connection it would probably be well to give a brief history of the more important breeds, the Poland China, the Berkshires, Chester Whites and Duroc Jerseys. According to Secretary Coburn, of the Kansas State Board of Agriculture, the Poland China hog originated in the Miami valley, in Butler and Warren counties, Ohio, about 1838 to 1840, and was for many years known as the Magee hog, and was developed by crossing the Big China, Byfield, Bedford and Irish Grazier, the result being a large and somewhat coarse, black and white spotted hog, which was crossed with the Berkshire to improve its fattening qualities, and to give it a more uniform color and markings as well as a smoother skin. The credit for the development of this breed is given to Cincinnati, which at that time was the greatest pork packing center in the world, and owing to its popularity and the fact that its development is purely American, it probably now numbers as many individuals as all other breeds combined in the United States. The Berkshire breed originated in England, Italian and Spanish swine being crossed with the coarser native hogs, about 1780 to 1800. Although imported to America about 1840, it did not grow into favor with the American farmer until about 1870, and since that time it has been rapidly improved and is much sought after by the feeder as well as the breeders of the States. The Chester White are the result of crossing the large white stock from Bedfordshire, England, with the white hogs in Chester county, Pennsylvania, about 1818 to 1830; these have been gradually improved by selection, until we now have what is called the Improved Chester Whites. The Duroc Jerseys are a breed of large, sandy hogs, obtained by crossing what was known as the Jersey Red hog with the Duroc of Saratoga county, New York. All of these breeds have been much improved by selection during the last thirty years, and the darker colors have been more popular generally than the white hogs. There are a variety of other breeds, mostly English types, but they are not generally known in this locality, although our United States Department of Agriculture has been trying to make us believe that we should swap our old and tried breeds for one whose reputation we know nothing about personally, called the Tamworth breed, which Mr. Coburn describes as being "a slab-sided, long-legged, big-headed, lardless, unlovely, red, rusty or sandy, half-civilized sort from England." Mr. Coburn may have formed some of his prejudices and dislikes to this much esteemed bacon hog by his knowledge of the wild hogs of the State of Kansas, which no doubt would answer to his description. The Tamworth hog may furnish a fine quality of bacon, but the cuts shown of him in our agricultural journals are sufficient to convince the average farmer, or the man who raises stock for profit by selling it for pork, that he does not want to swap his famous American lard hog for one that puts him more in mind of a race horse, than a profitable corn marketer; besides there is no doubt that if the Tamworth hog was handled, selected, and fed for years by the American farmer, that he too, would become a hog of a very different type, and in course of time become as famous a lard hog as our leading breeds. There is no question but that the quality of food, climate and general conditions have much to do in changing the types of hogs. For example, we all are familiar with the Poland China as bred and raised in the Miami valley, but select some of the best types of this breed and take them to Montana or Wyoming, feed them on alfalfa, peas and barley, and in a few years they will have developed into a very different type, and in fact, it is claimed by those who profess to know, that they will not even resemble in their make-up the species of corn-fed hog from which they came, but will be more like what is now termed the bacon hog, long, lank and lean. While on the other hand, in the corn belt, there will be a certain resemblance in the make-up of all breeds, causing them to grow gradually into a finer type of hog. This would incline us to believe that the kind of food used in their development, has much to do with fixing the character of the breeds. In fact, many breeders of fine stock advocate the idea that feeding entirely on corn, will eventually diminish the size of the breed, and if we expect to maintain size that we must feed more foods that are rich in protein and not so rich in fatty matter, such as bran, shorts and oats grown in our latitude. Our experiment stations also advise us that if we want to develop bone and size that we must feed that which is rich in protein to the young hog until he gets to be about eight months old, when they claim that he has had sufficient bone development not to be dwarfed by feeding corn. Notwithstanding all these admonitions, we continue to feed corn because it is cheaper, and trust to grasses to help us out on development of bone and muscle, although we have frequently observed, if a small pig is forced too rapidly on corn, that he becomes very fat and practically stops growing, showing a lack of frame development.

Feeding hogs for market is a very important matter financially, as much feed can be wasted by careless feeding. My experience is that a young hog should never be fed all that he will eat; in this way you keep him in better condition and keep him constantly growing, and he will do much better than if fed too much grain; if he is fed in the fall, allow him the run of a pasture field when not too muddy; a little grass with plenty of salt and ashes, will help wonderfully to sharpen his appetite and keep his digestive organs in good condition. I have seen it advocated that hard coal ashes are injurious to fattening hogs, that they are likely to make them costive and feverish, and they will not eat nearly as much grain as they would without the ashes. I have never fed hard coal ashes, but have fed both soft coal and soft coal ashes, and if they are well salted hogs will eat much of them and it seems to give them a relish for their feed. Wood ashes with copperas and salt, help greatly to rid hogs of worms, and is a good appetizer.

Old hogs may be kept on full feed for two to three months and not have loss of appetite, if desirable to feed that length of time. We used to turn our hogs in the cornfield and "hog" a field each year, but of late years it seems to be attended with too much risk, on account of disease; if you turn a hog in the cornfield and let him fill himself with green corn, if there is any latent tendency to disease about him he is sure to show it, so the best preventive is to feed him a limited ration of dry corn until the new is beginning to dry almost enough to crib. In cattle feeding, the hog is an indispensable adjunct, as he will do well, and seems to relish the refuse, and in fact will leave corn for it; without him this source of revenue would be entirely lost, only through the manure help as a fertilizer, when, by using him we have a two-fold profit. We often see accounts of cattle having been fed at a loss, but we usually find that their owners did not permit hogs to follow cattle in the feed lots, consequently a very large portion of the feed was wasted, as the refuse from two ordinary head of cattle will keep one hog growing and in three months will fit him for market. In fact, my experience has been, that it is not the best place to keep brood sows, as they get too fat to do well at farrowing time. In sections of the country where large cattle are fed, they usually count one hog for each steer, and if the grain is not ground, they count enough to clean up the waste in the feed lots, although in some of the blue grass pastures of the West they do not use the hog in summer feeding, as they claim the loss by the hogs rooting the permanent pastures exceeds the profits gained by using him.

In starting young pigs, it is a great advantage to teach them to eat as early as possible, and this is easily done by feeding them slops of some kind, made from shorts, ground corn or oats, mixed with some milk or slops of various kinds from the house. In fact, the breeders of fine stock feed their pigs certain seasons of the year almost entirely on slops, in order to force them as rapidly as possible and avoid the heated condition caused by feeding too much corn, which causes the teeth of the young hogs to become sore, and checks their growth by loss of appetite. Many feeders cook the feed, or a part of it, but for a large number of hogs, it takes a great deal of time, although I have no doubt that if it pays for a small number, it would pay for a large number. I am convinced that soaking corn, when it becomes very hard and flinty, adds greatly to its feeding value; it will evidently digest more easily and is not nearly so heating in the summer season.

The practice of crossing the various breeds for feeding purposes has proven very successful for the first cross, as it usually produces a very large hog with good feeding qualities, but the experience of those who have tried it, and have been observing as to the results, proves that it should stop at the first cross. When it is carried beyond this, the result is not so good; the animals often degenerate and fall far below the average stock of either breed from whence they came. This conclusion demonstrates to every hog raiser, that it is better for him to select some one of the more important breeds, and stick to it and avoid inbreeding, which in many cases has no doubt helped to bring on disease.

The marketing of hogs of late years has been an important study, as the season that is considered to be the best one year, will often prove the contrary in the year following. Usually August and September in the latter part of the summer are the best months, and occasionally the markets continue good during the month of October, but that depends to a great extent upon whether or not hogs are forced on the market from any prevailing disease in large sections of the country; if so, down goes the price. Another period is from the middle of January to about the first of May. During the late fall months the price of hogs is usually low, as this is the greatest feeding season of the year, and farmers are running their hogs into the market as rapidly as possible, and packers put the price as low as they think they dare, and all the farmer has to do is simply to throw up his hands and take what they choose to give him. They seem to forget the fact that pigs are often grown to from one hundred pounds to one hundred and fifty pounds on high-priced corn and are finished on cheaper corn, and claim that the farmer is getting well paid for his grain. To illustrate this point I remember a few years ago that the old crop of corn was worth forty cents per bushel in the home markets, and the new crop only sixteen cents to seventeen cents, and hogs brought two dollars and seventy cents at Chicago, the packers claiming that farmers were getting well paid for their corn. The man who argues such nonsense surely must think that all farmers accept everything they hear as true, and that they are totally incompetent to make any calculations for themselves.

The great drawback to the swine industry is the many diseases to which they seem to be heir. If it were not for cholera hogs could be produced more cheaply than they now are, as they require less labor to care for them than almost any other class of live stock. Taking the United States over, the ravages from this disease is enormous. The State of Indiana alone is estimated to have lost nine hundred thousand head in 1898, valued at more than five million dollars, which would furnish a good winter suit of clothes for every man, woman and child on the farm in the state, and the experiment station says that they used over four thousand, three hundred pounds of guaranteed cholera cures in 1897 and 1898 without finding a practical remedy. They further claim that the disease is worse near the large streams than it is farther back from them. Dr. Salmon, in discussing this subject, claims that in 1878 that the losses from swine plague were estimated at from twenty million dollars to thirty million dollars, and that it has gone on increasing with the growth of the industry until now it appears from statistics that have been gathered in some states, that it may reach from sixty million dollars to seventy million dollars a year, possibly more if the cases could all be reported. This is a total loss, and in many instances has blighted a man's prospects for a future home, and wasted his small accumulations for years. These losses are not generally appreciated, some even arguing that were it not for hog cholera, hogs would be so numerous that they would not be worth anything. That fear is not correct, as the price is often reduced when hogs are put on the market, from infected districts, in large numbers in a half fatted condition, for fear of disease. Were it otherwise, they could go to market in better shape and command a better price, or at least the farmer could feel that he was doing a safer business.

"POULTRY FOR PROFIT."

BY G. N. WINDLING, WATERFORD, OHIO.

[Read at the Farmers' Institute held at Watertown, Washington county, January 5 and 6, 1906.]

The first thought that appeals to me, in connection with this subject, is, can poultry be made to pay a profit. The best way to solve the problem is to look into the past and see if the poultry business has ever paid the farmer for his efforts. In the year 1899 the hens in these United States of America deposited for sale one billion, two hundred and ninety-three million, eight hundred and eighteen thousand, one hundred and forty-four dozen of eggs. Now, a case contains thirty dozen, hence it would require forty-three million, one hundred and twenty-seven thousand, two hundred and seventy two cases to contain the annual output. A big refrigerator car is about forty-two and one-half feet long, and when loaded, will carry four hundred cases. A sufficient number of such cars to contain all these eggs would fill a track eight hundred and sixty-eight miles long, or would reach from Chicago to a point way down south of Washington, D. C. Now, the value of the entire poultry product in the same year amounted to two hundred and eighty-two million dollars, while that of wool amounted to but forty-five million, five hundred thousand dollars, so you see that the value of wool is less than one-sixth that of the poultry product. Is it not time for the farmer to begin to study the relative value of their products? Would it surprise you to know that these patriotic old hens produce more wealth in one year than the entire oat crop of the Union, more than the wheat crop of twenty-eight states, more than the corn crop of eighteen states, more than either gold or silver produced by the entire world? Would you believe that the average farmer clears over 100% upon his investment in poultry? It is a fact. Now, my friends, you may think I have exaggerated matters somewhat, but I have given you straight facts from the very beginning, and I am a firm believer that there is still more profit in poultry.

Some people seem to fear that they will get more than their share, and the consequence is that they fail to get any and sooner or later drop entirely out of the business, and I shall try to outline some of the pitfalls wherein so many drop. I think if people once get started right, that they will need no more advice, as they will learn faster than they can put the principles into practice, and let me say right here, that unless you practice what you know, you are in just as bad a shape as if you knew nothing, but this is a condition we seldom find.

The most common pitfall is the lack of knowledge; too many people jump into the poultry business with both feet before they can tell a cock from a cockerel, a hen from a pullet, a Cochin from a Langshan, a sickle feather from a hackle feather and wonder why they failed. Would you expect success in the dry goods business if you could not tell calico from broadcloth? Would you expect success in the grocery business if you could not tell baking powder from lemon extract? There is an old saying, that we learn to do by doing, but nevertheless it is the most expensive of all methods, and I think that whenever we get a chance to profit by other people's experience we ought not to waste time experimenting, but take the nearest path and thereby come out ahead.

I would advise anyone who expects to make a living from poultry culture to first learn something about the business. Such information may be found in a good, reliable poultry journal, and also in up-to-date books on poultry. If you expect to keep pure bred poultry, you cannot afford to do without the latest illustrated standard work on the subject, neither can you successfully breed poultry without this book.

Now, as to the best breed. Keep the one for which you have a special liking, but under no circumstances could I recommend scrubs or mixed breeds. The up-to-date farmer has already learned that pure bred poultry requires no more time, feed or attention than do the mixed breeds or scrubs, and yet they double the profits, and besides this they are much more beautiful.

The location and construction of the poultry buildings also have much influence upon the results. They should be located upon a hill or sandy plot facing the south or southeast; they should be so constructed as to be as convenient as possible and yet comfortable; they need not be built from matched lumber; a straight sheathing covered with tar paper kept painted is just as good and is much cheaper. You should allow six square feet floor space and one hundred and fifty square feet yard space per each full grown fowl. The floor should be at least one foot above the surrounding surface. Earth is considered the best for the roosting department, while cement is to be desired for the scratching shed, providing it is kept well covered with scratching material. The scratching shed should contain over one-half the floor space, and should have a curtain front, which may be lowered in extremely cold and stormy weather. Plenty of light should be supplied by slide windows, always on the south side, and all openings which cannot be made very tight, should be on the same side to prevent drafts. The roosts should be low with dropping boards ten inches below them. A bench should be so constructed as to prevent the fowls from getting their feet into the drinking water or scratching dirt into it, and the feed trough should also be so constructed, which can be easily done by having a hallway through the coop and letting the fowls eat through lattice work.

As to feed, give them a-plenty, and feed a variety in clean troughs and in clean scratching material. Never throw feed in the mud or allow the birds out in the snow. The nutritive ratio when feeding for eggs should be fourteen and seven-tenths, which may be secured by the use of beef scraps, meat meal, dried blood or cut-bone, any of which may be fed pure in hoppers or mixed with the mash. Grit, shells and charcoal should be fed in hoppers and kept before the fowls at all times. The water should be kept perfectly clean and fresh.

The coops should be given a very thorough cleaning at least once a week and thereby solve the louse problem. As to ventilation, do not fear fresh air, open the windows wide each day unless the temperature falls below zero, when one hour in the morning and one at night is long enough, but be sure and close, or partly close, the windows at night, using the best of your judgment. Exercise is essential to the health of the fowls, but do not send a dog after your chickens in order to give it to them; that is the wrong kind. Scatter all shelled grain in a deep layer of chaff or cut straw, to make them work for what they get; it will give them an appetite and increase the circulation of the blood and can but be beneficial.

Now, in conclusion, let me again refer you to a good reliable poultry journal and to up-to-date works on poultry for much more practical instruction upon this subject, and let us all try to see if we cannot make 1906 a better and more profitable year than any of its predecessors. None of us will have reason to regret any effort we can make, if we are at all interested in profitable poultry.

"FEEDING POULTRY FOR PROFIT."

BY A. A. EPPERT, AMELIA, OHIO.

[Read at the Independent Farmers' Institute held at Amelia, Clermont county February 21 and 22, 1906.]

Listen! What do we hear? The faint shrill chirping of little chicks, "Sweet, sweet, sweet." Let us open the door to the machine that stands in the corner yonder and we shall find a fine hatch of chickens from the eggs that were placed there some three weeks ago. When the door opens the babies come tumbling toward the opening ready to be taken from that hot place and put where they may have a chance to play, hop, skip and jump, and where they may get something to eat.

But some one whispers, "What are you going to give them?" Their first meal, which is given them as soon as they show the least sign of picking, consists of wheat bread. After they are a few hours older we will see how a hard boiled egg mixed with some bread crumbs will be enjoyed. This, mixed with rolled oats makes their food for some three or four days, when our babies should have a fine start. From this time on until they are a week or ten days old, the rolled oats, fed dry, will constitute their chief food. Then a corn bread, made from the yellow cornmeal and buttermilk, fed with cracked corn and wheat as soon as they can swallow the grains, will keep the flock in a fine growing condition.

Gravel, or better, sand, should be kept where the brood can have access to it all the time so they can get it whenever nature demands it. As to water, it should be kept where they can get it whenever wanted. But be careful not to put it in vessels so constructed that they will be in danger of drowning, or will get themselves wet by jumping in the water. Our method of giving these little ones the water that is so essential to sustain life is to take a teacup and fill it, then place a saucer over the top with a tiny piece of wood or a small nail between the cup and saucer and then quickly invert them. In this manner the contents of the cup gradually leaks into the saucer. If this brood has been properly cared for, it will be ready for market at the age of six or eight weeks, weighing from three-quarters of a pound to one pound each.

As to feeding for eggs, it is not done from the same standpoint as that of the one who thinks there is nothing to be done but to pick up his basket and saunter leisurely along to the nests where he thinks the biddies have left him a nice harvest of eggs. Nor yet, as the one who just yesterday built a quantity of nice nests and made them so cosy with the oat straw and today did not get an egg. The first and best thing to be had, if it is at all possible, is a large, free range containing plenty of blue grass and clover, with growing wheat, rye or oats. Oats in the milk, or dough, is a very fine egg-maker, but, of course, it can be had only during the spring and summer months. The fall and winter feeding should be as varied as possible. The best morning feed is made up of one hundred pounds of corn and fifty pounds of oats, mixed and ground together. With this is mixed thoroughly one hundred pounds of middlings and one hundred pounds of bran. Take of this mixture an amount suitable to the size of your flock, taking into consideration the size of the breed, as the large birds will eat more than the small ones. Place in a suitable vessel, pour on boiling water sufficient to scald it well, but have the mixture much dryer than ordinary mush. This must be fed warm. The evening meal should always be of whole grain. Corn, as a rule, is the best, especially to sustain the fat and strength of the body. Remember, the poor hen never lays, unless she be of the kind that lays the longest. Never feed corn in a frozen state. Better shell and parch it, then feed as soon as you can hold a large handful for one minute.

The best, and nearest perfect food for egg-production is green bone, but it is so hard to get here that it makes it unprofitable. Wheat is the next best, or perhaps the best, taking everything into consideration. As a food for the hen wheat is cheaper at one dollar per bushel than corn is at fifty cents per bushel. Next to this, for an extra good feed is the hard pressed pork cracklings when ground in the bone cutter, allowing one-half ounce for each fowl. It should be fed from four to six times a week. There is nothing to equal this and ground green bone thrown among the dry litter that should be in the henhouse to bring about the scratching, singing, fighting, swearing and cackling that you will have to see and hear before you can expect to find that nest of beautiful snow white or pretty brown eggs.

My experience with oats as a whole grain has not been satisfactory. It is likely to make the fowls crop-bound, and cause indigestion, sometimes called chicken cholera. I have had but very little experience with rye as an egg-producer, but I should not consider it to be as good as some other grains.

Do not feed your chicks all they will eat once or twice a week and let them search for food the rest of the time, but feed them regularly and the same amount each time and as much as they will eat, especially in the evening.

In midwinter when the biddies are shut in from the winter blasts and snowdrifts, it is a good plan to gather clover leaves from the barn floor or mow, scald them and feed warm. Vegetables, such as potatoes, turnips, beets, etc., may be thrown among the straw to your advantage and their enjoyment. Never feed sour or sloopy food to young or old, rather let the fowl be the judge of the amount of moisture taken.

I have read a great deal about supplying the poultry yard with fruit, and of what a great advantage it is to the poultry. Experience emphatically shows that nothing is gained thereby. In fact, acids are detrimental to the production of eggs, and you will find when a chick under three weeks of age becomes a feeder on tree fruits, such as apples, the result is always death. Consequently, I advise you to keep the fruit from your chickens, that you may reap the profits from a well fed flock.

There are many little things that you can do that will add to the comfort of your flock and thus add to the amount of your profit. One of the most essential things in the poultry yard is plenty of water which should be warm in winter. A generous supply of water keeps from the flock that robber known as the egg-eater, who is going to have moisture from some place if she eats the last egg in the nest.

Many things must be taken into consideration as to the expenses of the yard. Such as buying crystal grit, when you can visit any small stream and obtain that which is just as good or even better. Or take the limestone that has been heated, such as has been used about the butchering, pound it fine and feed. This will furnish the grit for the grinding and the lime for the shell. This is necessary only when the hens have been shut up for several days at a time.

Fancy poultry powders and feed are used nine times out of ten at an expense. We often begin the use of these powders in the spring when nature is about to begin her work, and the result is amazing. We give all the credit to the poultry food and tell our neighbors about what wonderful results we have had in feeding such a food, when the real fact is that we have lessened the profit. Try feeding this late in the summer and fall, when nature says your flock must rest, and note the result for yourself.

Experience has taught that it is better not to feed for eggs during the months of August and September, as it will give the chance for the needed rest to rebuild for the winter supply of eggs. The flock that pays the expenses during the fall and winter months will surely add to the profits of the farm during the spring and summer.

The following is taken from the report of the United States secretary of agriculture:

"The farmer's hen is becoming a worthy companion to his cow. The annual production of eggs is now a score of billions, and, after supplying the needs of factories, tanneries, bakeries and other trades, they are becoming a substitute for high-priced meats, besides entering more generally into the everyday food of the people.

"Poultry products have now climbed to a place of more than half a billion dollars in value, and so the farmer's hen competes with wheat for precedence."

"EXPERIENCE WITH THE SILO."

BY T. H. NELSON, HILLSBORO, OHIO.

[Read at the Farmers' Institute held at Hillsboro, Highland county, February 9 and 10, 1906.]

My knowledge with the silo, like that of most others, I suppose, began with reading about it in the agricultural papers. The first account that I remember was in the agricultural columns of the old Cincinnati Gazette. The idea at that time being a comparatively new one, the impression made on my mind was lasting and nothing on the subject that came within my reach escaped me.

A few years ago it became necessary for me to build a barn and, considering the practicability of the silo demonstrated, I concluded to include in the building two silos, one sixteen by eighteen feet, the other eight and one-half by sixteen feet, each thirty-five feet deep. My idea was to feed from the larger one in the winter and the smaller one in late summer. This was a mistake, for late summer feeding, green feed direct from the field is better and more economical. No matter how much ensilage you want, if wanted at one place put it all in one silo. I lose more ensilage in my small silo than in my large one.

Having had no experience in building of any kind the construction of the silos gave me a good deal of trouble and some unnecessary expense, and gave less satisfactory results than might be attained. The services of a man who has had experience in building silos would be amply repaid even if he had to come from a distance. As I do not consider the plan of my silos the best, I will not take time to describe them except in two or three points where serious losses have occurred, in the hope that others may be deterred from making like mistakes. If a square silo is built the corners should be well rounded and secured. The corners of my silos are cut off about fifteen inches and some air gets in, causing some loss near the surface. The main frame of the barn should not be a part of the silo frame. In my zeal for capacity, I dug down three feet below the bottom of the basement and paid dearly for the extra capacity in loss from water getting in and expense to keep it out. The objection that it is too much labor to throw the ensilage up out of the pit is hardly worth considering.

But, after all, the main question in regard to the silo is the one of profit. If this element be lacking then the other points need not be discussed. No doubt I am expected to boom the silo, but such is not my purpose. I am sure that it would not be best for every farmer to have one. As to the value of ensilage for stock food there can be no doubt; its value has been demonstrated beyond question. I would say that it just about doubles the value of the corn put into the silo; it makes use of the whole plant at its full value. I have often been asked how much of it the stock eat and how much they leave. They eat it all, sweeping the trough would be a useless waste of time. There are some particulars in regard to filling the silo and feeding that may be profitably considered later, but I want to speak further on the question of general and final profit. The profits of the silo are governed more by the problems of labor and expense than anything else. The use of a silo presupposes a barn in which to feed the ensilage, and the silo itself is a pretty expensive thing to build. If you can settle these questions of labor and expense to your satisfaction then I would not hesitate to recommend the silo in unqualified terms. The most troublesome part of the labor for me has been the filling of the silo. If three or more neighbors would join together, this matter would be simplified, but where you have a silo and your neighbors have none they will not leave their crops to help you, and you have trouble in getting enough competent help. It requires a full set of threshing hands and teams to make good progress in filling a silo. The labor of putting a given amount of corn into the silo differs very little from that of handling the same corn with the shredder, including cutting and shocking, but the help is harder to secure and costs more. The labor of feeding out the ensilage is much heavier than in feeding the dry corn and fodder. More stock will be required to eat it, more bedding must be provided, more manure hauled, and larger crops handled, in consequence, in succeeding years. If you are arranging to reduce labor and expense you cannot use the silo. To feed ensilage profitably one must have some kind of protein feed to balance the ration. I believe that a balanced ration is a good thing in all cases, and I know that in feeding ensilage it is absolutely necessary to have some kind of protein feed. Stock will not do well on ensilage alone or on ensilage and fodder. I do not think cattle that are in good condition to begin with will gain a pound during the winter on ensilage and fodder alone, but with the addition of two pounds of oil meal per day or an equivalent in bran, gluten or some other protein-bearing food, they will gain two pounds per day each regularly through the winter and spring. I have had calves to gain three pounds a day on half this amount of feed with some milk.

Some people are inclined to sneer at the balanced ration, calling it "book farming," and point to instances where stock has done well on a one-sided ration. I call to mind a notable case of this kind cited in a recent number of the Breeders' Gazette by a correspondent. He mentions beets, timothy pasture and ensilage as feeds that will produce perfect results without the use of anything to balance them. Now, I know that ensilage will not do this; beets and timothy pasture may do a little better, but I challenge anyone to prove that bran or oil meal will add nothing to the value of beets and timothy pasture.

Notwithstanding the fact that college students and professors may err, and doubtless do err, my experience leads me to place a high value on the results of their research, and I think it would be the part of wisdom to prove their theories false before discrediting them.

I have said nothing of clover and alfalfa hay as feeds to balance a ration of ensilage, mainly because I have not made any practical test in this line. I believe in them and feel a little vexed because I cannot make more use of them and save buying commercial feeds.

It is about this way. I have all the ensilage that all my cattle can eat and must get rid of the corn fodder, and it seems that with eighty tons of clover, alfalfa and oats hay in the barn I must either feed the fodder and sell or keep the hay, or feed the hay and waste the fodder. With all the ensilage they can eat, cattle will not consume a great deal of other roughness, about half what they would eat if fed on dry grain and hay or fodder. Cattle, properly fed on ensilage, will do as well as on grass, will gain as much, give as much milk, keep in as good health and cost only a reasonable percentage more. Where steers are fed, a small increase in the grain ration will prepare them for market, and I think it will generally pay to market them direct from the stables without grass.

I do not hesitate to recommend the silo to dairymen, and breeders of pedigreed stock, that must be fed during the greater part of the year. For the ordinary farmer there might be some doubt as to the advisability of incurring the additional labor and expense necessary. Ensilage is something that cannot be sold but must be fed, and mainly to cattle. I feed it to horses because it is cheap. They are not especially fond of it and it is better to feed them limited quantities and vary it with bran. Sheep will eat it, but they are generally kept in pastures in this locality and do not need it. Hogs will eat it, but waste a good deal, and the feeding of it to them is of doubtful propriety. Many people have an idea that it is a difficult thing to keep ensilage. In fact, it is the surest way to keep the whole plant that I know. The wind never blows the shocks down and rain does not hurt it. While it is important to cut the corn at the proper time, it will keep if cut at almost any stage, and will make as good feed as if shocked at the same stage.

The proper time to cut is when fully matured and yet green in color and full of sap throughout. A few yellow blades and husks will not injure it, but stalks should not be dry or yellow. While in some ways the blower is more convenient, I am convinced that the carrier delivers the corn into the silo in better shape and is on the hole, more satisfactory. Some authorities claim that tramping the corn is unnecessary, but I think that some tramping is a good thing and a good deal is better. Most of the tramping should be done around the edge, and if there are corners, they should have extra tramping. By around the edge I mean exactly against the wall and not a foot from it, which is the easiest place to tramp. If a covering of fodder and then of sawdust is run on before the machine stops, it will save some ensilage. If allowed to stand over Sunday, after being pretty well filled, the bottom will drop out and you should fill it up. This settling draws the ensilage away from the edge and leaves a space for the air to get in, which should be closed up by tramping.

It is quite a problem to get the fine and heavy ensilage from the pit to the feed troughs. I will give my method, not as the best, but one that, after four or five years' use, has proved fairly satisfactory. The silos are at one end of the barn. The stables, six in number, run crosswise of the barn, the cattle in rows facing one another, with a four foot feedway, and mangers or troughs, between. I have a track hung to the joists running lengthwise of the barn and across the stables and mangers about midway. A car holding ten of the A. I. Root bushel boxes is hung to the track. The ensilage is thrown from the pit with a coal fork to the floor in the basement whence it is shoveled with scoopshovel into the boxes and tramped. Three boxes make one hundred pounds. One box feeds two cows or four calves. The boxes are set on the car and shoved along the track until the desired place is reached, when they are carried each way and the contents dumped in front of the cattle. I expect to feed off the entire surface at least once in two days. In feeding one hundred and twenty head of cattle, this takes it deep enough to make a good fork full, something like five inches.

In finishing cattle for market, corn should be added and the ensilage decreased toward the last. I have greatly benefited my grass by keeping the stock off until late in the spring which can be done without injury to the stock. I kept thirty head of calves in last year until June 3. I think generally it will not pay to do this where grass is available and land not too high in price. However, if the cattle are to be sold within three weeks, it will not pay to turn them on grass, even if it were furnished free of charge, for they will lose rather than gain for that length of time.

To sum up, ensilage is good food for stock. It is the cheapest winter feed. It is easily kept. It will pay any one who uses it intelligently.

"ALFALFA IN CLARK COUNTY."

BY W. H. ROBBINS, SPRINGFIELD, OHIO.

[Read at the Farmers' Institute held at Donnelsville, Clark county, December 29 and 30, 1905.]

In considering the raising of alfalfa, the first question is, what are the conditions favorable to this crop? It is well established that the climate of the central and southern portions of Ohio is well adapted to growing alfalfa, and the same is true of a part of the soil. It is safe to say that any good soil, either clay or loam, upland or bottomland, will support alfalfa, providing the following conditions exist: First, it must be sweet, as alfalfa will fail on very sour ground unless the acidity is first corrected; second, there must be no blue clay, hard-pan or bed-rock within eight or ten feet of the surface, as the roots will fail to penetrate this and the plants will usually die during the second year; third, there must be no water within five feet of the surface; fourth, water must not stand on the ground for more than twenty-four hours at a time; fifth, the soil must contain sufficient humus; sixth, the necessary bacteria must be present.

In preparing for seeding the ground should be plowed early and worked thoroughly, using the disc harrow and the spike-toothed harrow, and whatever other implements are necessary to get it in the best condition possible. Too much stress cannot be laid upon the importance of a good seed-bed, for, although the alfalfa plant is very hardy when it comes to maturity, it is easily killed in its earlier stages, and while the seed must be covered with warm, moist soil to germinate properly, the seedling cannot break through a hard crust, or push aside clods to reach the light and air necessary to its life.

If a nurse crop is to be sown with the alfalfa, and on good strong land, this is the best plan, barley, of the beardless, spring variety should be selected; this is not of a rank growth, and while the yield will generally little more than pay the rent of the land, it is harvested early, so giving the young alfalfa plants a chance. Where you hear of a stand being secured with rye, wheat or oats, it is the exception, and not the rule; rye and wheat shade the ground too much in the spring, and oats make too heavy a growth, and are apt to lodge, while the beardless spring barley has a short, strong straw, and stands up well. We sow two bushels with alfalfa, but if the ground is a little thin, less should be sown.

Much has been said both in favor of and against using the inoculating material furnished by the government. This is free, however, and the cost of inoculating the seed is not great, as enough can be prepared to sow from ten to twenty acres at a cost of less than two dollars. Write to the chief of the Bureau of Plant Industry, Department of Agriculture, Washington, D. C., stating the number of acres you wish to sow, amount of seed to be used and time of seeding, and enough material will be sent you, with full directions for its preparation and use. Should commercial fertilizer be used, it should not come into direct contact with inoculated seed.

If the soil is lacking in either phosphoric acid or potash, these should be supplied in sufficient quantities. In case it is necessary to apply ground bone to furnish the phosphoric acid, this should be done some time before seeding, so that it will be enough dissolved to give the young plants their proper nourishment. Nitrogen will probably be needed to give the alfalfa a start, but this is usually present in large enough quantities. After that, if the plants are healthy, and have the proper bacteria, they will gather all the nitrogen they need, and more, from the air. The presence of bacteria is indicated by nodules, which form upon the alfalfa roots.

The seeding should be done in April, if barley is used, but take plenty of time to prepare the ground well. The first week in May is usually not too late to sow and still secure a good crop of barley, and do well with the alfalfa.

As for all other crops, the best and cleanest seed obtainable should be secured, and that from a reliable dealer, as it is high in price, and frequently adulterated. We sow a bushel of alfalfa seed to four acres and in most cases if directions are followed that will be sufficient. When sown with a nurse crop, a disc drill with seeder attachment is the best, adjusting it so that the alfalfa seed will be thrown in front of the discs. Do not be afraid to cover it with two inches of earth. Follow the drill with a spike-toothed harrow, or better still, with a drag. If a hard crust should form soon after seeding, and before the alfalfa is up, it will be well to break it with a light harrowing.

The first week in July the barley will be ripe and ready to cut, but if before this time foxtail, or any other weeds should threaten your stand of alfalfa, mow the field and get the cutting off the ground as soon as possible. The barley can be made into fairly good hay, and the securing of a stand of alfalfa is the all-important thing. After cutting the barley the shocks should be moved to the mow, rick, or threshing machine as soon as possible, for if left on the field too long they will kill out the alfalfa where they stand.

Whenever weeds threaten the alfalfa, they should be clipped at once. If the cutting be heavy, it should be raked up and moved, so as not to smother the alfalfa. Usually the field must be gone over at least twice with the mower after the barley harvest, care being taken, however, that this is not done too late, as alfalfa should always go into the winter with a good top. A top dressing of from six tons to twelve tons of manure per acre put on any time after frost in the fall will be repaid by increased yields and a more vigorous stand.

During the first and second years, and sometimes after that, rust may appear in the alfalfa. This is indicated by its turning yellow, and is accompanied by a noticeable check in its growth. Generally rust first appears in spots, during times of drouth or after excessive rainfall; unless checked, it will spread until the whole field is affected. The only remedy that I know, is to clip with the mower whenever and wherever rust appears. This is generally, but not always, effective.

The making of the first crop of hay is one of the greatest problems connected with alfalfa. The time for it is June, when the weather and the other farm work is keeping you guessing. However, the following is the way we try to do it: We start the mower as soon as the alfalfa shows the first bloom, one-third in bloom is recommended, but as this would make the last of the crop in full bloom when cut, we do not wait that long. We cut in a day more or less grass, according to what we think of the weather indications. The next day we rake the hay into windrows; if it has any outside moisture we first stir it with a rotary tedder, which opens it to the air without kicking it to pieces. In the afternoons, all hands who have been plowing corn in the morning, throw the hay up into small cocks. These we cover with canvases, each four feet square, which are secured by sticking wire pins through eyelets in the corners into the cocks. In this way we protect the centers of the cocks from rain, the sides usually drying out without much damage. When the hay is sufficiently cured, we uncover and open up in the morning as much as we can put away that afternoon. A sling is placed on the bed of each wagon, and a carrier with a sling attachment is used in the mow. With this attachment we use two forks, which if stuck properly will take off the top of the load as evenly as though slings were used. The top two-thirds of the load is taken off with two pulls, after which the forks are detached, and the bottom cleaned up with the sling. With this rig we have mowed away twenty loads during one afternoon.

The second and third crops are made with less danger of spoiling than the first. The greatest chance of loss is from handling the hay too dry and shattering the leaves, which are its most valuable part. Probably the most successful plan in good weather is to let it partially cure in the windrow, rake with a wooden rake, and throw it into loose piles, not disturbing it again until it is pitched on the wagon. I have never seen a side delivery rake or a loader that I thought would handle alfalfa without too much loss from shattering. Alfalfa should never be put into the mow or rick while damp from any other than its own moisture. We have never secured any portion of a first crop that I thought was perfectly cured, but while it has always mow-burned a little, the only spoiled hay is on top, where the moisture from the whole pile gathers, and the rest, although a little dark in color, is excellent feed for any kind of stock.

Alfalfa is the best pasture for hogs during the season, which is from the middle of May until frost in the fall, that I know. Horses, too, do well on it, but are likely to spoil a good stand by too close grazing. With cattle and sheep it is different, as they are liable to bloat when turned on alfalfa pasture. Hogs should be ringed for the best protection of the pasture, and should not be kept there for a great length of time during very muddy weather. To make good pasture alfalfa must be clipped from time to time during the season, going over only a part of the field at a time, so as to always have good grazing on the rest. The method we employ is to divide the field into two equal parts with a temporary hog fence, having a shelter in the center, and feeding and watering facilities convenient for either side. We then pasture and make hay on each side alternately. It is surprising and gratifying to see how much pasture a field will afford, when handled in this way, without greatly diminishing the size of the hay crop. Of course, with hogs on alfalfa, grain should always be fed in order to obtain the best results.

When fed to horses alfalfa should be used sparingly. Ten or twelve pounds a day per head is enough. Most of them like the hay even better than their grain and, if allowed to do so, will gorge themselves with it, indigestion resulting. When run through a cutting box, and mixed with grain, the hay will be greedily eaten by hogs. One pound of hay to three of ground grain is the proportion to feed to fattening hogs, while three pounds of hay to one of cornmeal is right for growing pigs and brood sows. This should be well mixed, and wet down before being fed. Used in this way the chopped hay will take the place of bran, giving as good results and being much cheaper. There is no better hay to feed in connection with grain to fattening cattle, milch cows, sheep, or breeding animals of any kind. It is claimed that the great trotting stallion Croceus received no other hay when on his record-breaking campaigns.

Alfalfa will take the place of oil meal, bran and other laxatives and flesh formers. The hay is well liked by poultry, and will help to make hens lay in winter. Four tons to the acre is not too large a crop to expect, and it usually improves up to the eighth year. What plant food it does not get from the air it gathers in large proportion far below the surface of the earth, and it is better for renewing the fertility than is red clover.

"GROWING POST TIMBER ON THE FARM."

BY J. J. CRUMLEY, YELLOW SPRINGS, OHIO.

[Read at the Independent Farmers' Institute held at Yellow Springs, Greene county, February 22 and 23, 1906.]

It may seem somewhat strange, but it is a fact, that the early settlers of this country were more careful with the forests than their descendants are. For example, William Penn, in founding Pennsylvania, made it a condition that of all land acquired from him one acre out of every five should be left in forest. The cause of this strict care in preserving the forests may be found in the fact that the early settlers came from countries where wood was scarce, and careless destruction of it was punished by severe penalties. The following generations, that grew up in the midst of forests so dense as to be the principal obstruction to progress and the making of a living, lost this keen appreciation of the value of timber, and their descendants do not seem to have recovered from that loss even down to the present day. But forest fires and the havoc wrought by lumbermen, together with the settling of the western prairie states, have awakened anew a somewhat lively interest in our forests.

In the space alloted to the present paper, only one of the many phases of the subject of forestry can be discussed, viz., the growing of post timber on the farm. Even this one phase contains so much that is of vital interest to the farmer, that many of the details must necessarily be omitted.

I know a man who for many years owned a farm on which he lived but regularly went to town to buy the garden vegetables for his table—raised none of his own. I have heard that man criticised by other men who owned farms and yet went to the same town to buy posts to fence their land. When I heard the criticisms of these men, I was reminded of a passage in a certain book that was used as a reader in the good old days of yore with the alphabetic method of learning to read. A certain boy who, I suppose, never astonished the world with his art as a reader, was one day struggling with the passage in question and rendered the last part of the sentence somewhat as follows: "Which strain at a g-n-a-t, gate, and swallow a c-a-m-e-l, sawmill."

In speaking of growing post timber, there are three kinds of places or conditions that should attract our attention: Waste land, places unavailable or unhandy for cultivation of other crops; tillable soil; the wood-lot. Under the first class may be mentioned small corners of fields cut off by some creek or other natural cause; a portion of some ravine that, for example, starts in a field and before reaching the edge of it becomes too deep to cultivate across; rough land, probably rocky or from some cause disagreeable to till; briar patches in permanent pastures where the briars are too rank for the cattle to keep down; narrow strips by roadside, especially where some bank or ravine has caused waste land that would naturally be covered by unsightly and worthless bushes.

One thing especially that I desire to call your attention to here is that these out-of-the-way places, as a rule are producing next to nothing and besides are an eye-sore to the farm, and they can be set to valuable trees with almost no expense. In doing this you change some worthless, ragged-looking corner or ravine into a beautiful grove that makes you feel good every time you look at it, and that will in a few years bring you as large an income as any other spot of land on your farm. About twenty-three years ago a grove of hardy catalpas and black locusts was set by Mr. E. R. Walton on his farm eight miles south of Xenia. The trees were set at a distance of eight by ten feet in an old roadway. They were never cut back, never pruned or thinned. The locusts were cut from this grove five years ago and some trees of the second growth are now large enough for posts. If the catalpas were cut now and sold on the ground at the same price that he sold some of those cut five years ago, (twenty cents), they would yield a return not less than thirty dollars per acre for each year that the grove has occupied the ground. It may be noted here, in regard to these little corners, that if they are good land they will bring a greater yield than you can expect from the midst of a large grove, owing to the fact that they have more light and a greater chance for root system. Mr. Walton at an age rather past middle life set out this grove, and from the seed gathered from it has grown another grove that now has plenty of trees that will make four posts to the first cut, and this second grove would bring a good income if marketed at this early date.

You can raise your own trees at almost no cost, you can set them at a time when it is impossible to get into your fields to plow, and the cultivation of them will cost no more than keeping down noxious weeds and useless bushes in such places, and this continues only a few years.

As regards the second division of my subject, the question may be asked, will it pay to set out good tillable land to trees? Whatever may be said concerning the waste places, we have here a different problem because another element has entered, that is the use of the soil for other crops. The average Ohio farmer, of howsoever ethical turn of mind he may be, will not want to cultivate his smooth fields to trees for the mere fun there is in it. Let us look then at the financial side of this division of the subject. Here we can probably do no better than to see what the income is or has been on groves that are now ready to cut or that have already been cut. The most extensive work of this kind in the United States has been done near Farlington, Kansas. There are four plantations there ranging from one hundred and thirty-five acres to six hundred and forty acres each, aggregating one thousand, six hundred and ninety-five acres. The government authorities have made estimates of these forests and some of the forests have been cut and used. The ages of these forests when estimates were made a few years ago were respectively eleven, thirteen, eighteen and twenty-one years. The trees were cultivated from two to four years, after that, in the majority of cases, nothing was done to them. In making estimates, posts were counted at ten cents for first class and six cents for second class. These plantations produced as follows:

The Munger grove, age thirteen years, two hundred and fifty-two dollars per acre, or nineteen dollars and thirty-eight cents per acre for each year that the grove stood.

The Farlington forest, age twenty-one years, eighteen dollars and twenty cents per acre for each year.

The Hunnewell plantation, age eighteen years, twenty-one dollars per acre for each year.

The Yaggy plantation, age eleven years, twenty dollars per acre for each year.

To sum up, these four plantations have produced an average of about twenty dollars per acre for each year that the trees have been growing. These are all gross proceeds. Please notice that there is included in this one grove that was only eleven years old and that first class posts are counted at only ten cents apiece. At the present price of posts in Ohio, these figures may be nearly, if not quite, doubled.

We have in Ohio no large plantations of any considerable age, but several small groves. Our experiment station has made estimates on eight or nine of these, twenty-one years to twenty-five years old, catalpa and locust, in Clinton, Champaign, Fayette, Franklin, Greene and Morrow counties. In making estimates of the value of these groves the station counted first class posts at ten cents, and found that the groves had produced an average of ten dollars and thirty cents per acre for each year that the trees had occupied the ground. Twenty cents would be a conservative price for posts of this quality in this part of the country. This would make the yearly yield per acre twenty dollars and sixty cents. The majority of these groves received almost no attention after the trees were set. Some of them were set too close, some too far apart, some in soil not adapted to the trees, and yet they have produced as large a yearly income as wheat and corn would have produced during the same time. In these estimates gross products are given. If we take into consideration, on the one hand, the cost of cultivating the trees and the interests on the investment through a long period of years and on the other hand the yearly cost of cultivation, the net prices will probably favor the trees. By examining the groves referred to and with the experience of these men before us, we ought to be able to bring a better income than the average of these groves.

The third situation to be discussed is the woodlot. I mean by this, native woodland that has become too thin to occupy the ground completely. A large amount of the woodlands of Ohio are at present of this kind. We understand that in the proper management of such land there are two things to be done, setting out valuable kinds of trees in vacant spaces, and the cutting of ripe trees or of worthless trees. In almost any woodland you will find numerous old trees, frequently only a shell of sound wood, and these trees usually take a large amount of space and yet are not producing anything at all. These, of course, should be cut so as to give room for young valuable trees, which in many cases are already started under the branches of the old, useless trees. Then there are vacant spaces that should be covered in some way, for they will not stay vacant long before the grass will spring up, and grass and forest do not go well together. As soon as the forest begins to get thin and the grass appears, the leaves will blow out from beneath the trees, where they should remain for mulch, and soon dead topped trees appear. You need not go far to see this feature in almost any of our woodland. This no doubt leads to the common saying that if you cut some trees others will die.

Under the term woodlot I am not discussing the permanent pasture with numerous trees. If the object is pasture, then the trees are only a secondary consideration and there are some trees that will grow fairly well in this condition, especially the smaller trees like the locust, but most of the great forest trees, especially the oaks, soon begin to show dead tops when the leaf mulch is removed from beneath. The sugar maple is well adapted for use in a permanent pasture.

It is evident that if you are going to reforest a thin woodlot, you must keep cattle out for several years, but I believe that these vacant spaces can be made to produce a better income by putting in some post timber than the small amount of pasture you could get and at the same time be a help rather than a hindrance to the rest of the forest. The trees that I would suggest for this use are the osage orange, catalpa, black locust and mulberry. If the space in question be small and thereby does not get a fair amount of sunlight, I would not use the catalpa or the locust. In such a place, the osage orange would probably take first rank because of its being a shade enduring tree. Such woodlot fenced up will soon of its own accord send up thousands of young trees and after only a few years the place should have some attention, as very frequently the most numerous ones are of the most worthless variety, such as ironwood, papaw or sassafras. In the woodlot, it seems to me we should also plant a few black walnuts, not for posts but to leave as a permanent forest.

Such a woodlot may be used for a sheep pasture earlier than for cattle, but we should not expect very much pasture from a woodlot at the best.

Several things should be considered in deciding the kind of tree to plant; the durability of the soil, rate of growth, liability to attack from any enemy, nature of the soil, etc.

Among those best suited for cultivation, we should name the hardy catalpa (catalpa speciosa), bois d'arc or osage orange, black locust, mulberry, red cedar, chestnut. Among these the hardy catalpa at present seems to be the most popular. Its durability is first class, it is a very rapid grower, has but few enemies, adapts itself to a great variety of soils, is very easy to transplant, is reasonably straight, and will grow into a tree large enough for sawed timber. It is extremely important on this point to see that you get the proper variety. There are several varieties of catalpa and the seeds and small trees are so nearly alike that only an expert can distinguish between them. There are a number of groves in our state in which this serious mistake has been made. The other catalpas are not as straight, are of slower growth or smaller.

Any one of the other trees mentioned above seems to have one or more serious defects. The bois d'arc, for example, makes probably the most durable post that we can grow, but it is far behind the catalpa in rapidity and is not as straight. It has, however, but few enemies, adapts itself to a great variety of locations, and is one of our best shade enduring trees. Let me say here, if you have an old hedge row, do not go to grubbing it out. If handled properly, it will bring you as great an income as any other piece of land of equal size on your farm. The locust is probably most subject to pests; but it is a fast grower, is very durable and will flourish on poor, rocky soil, or almost in the absence of soil, where most of the others do not thrive. I would not risk the locust to any large extent in this community unless I knew from experience or observation that the location was suitable for this tree.

The berries of the Russian mulberry constitute a redeeming feature for that tree, for you can grow posts and hog feed at the same time, but it is too much inclined to branch and is not a very rapid grower. The red cedar is too difficult to transplant and is too slow of growth in first five or six years. It is much inclined to spring up of its own accord in permanent pastures and is probably worthy of our attention there, but the limbs must be taken off when they are very small. If allowed to get an inch or more in diameter and then taken off, the place will never heal over, but there will be a long cavity in the side of the trunk. Pure, uniform, red cedar is one of our most durable woods, but the wood as grown in this climate is very unreliable. It is so likely to have pale red spots which will soon decay.

Chestnut makes a fairly good post but the tree does not flourish on this limestone soil. It likes a sandy or rocky soil. From the number of chestnut posts that I see shipped in here, I am inclined to think that the estimate of its worth has been taken from its known durability above the ground and I fear that this estimate is too high for its durability in the soil, for so far as I have observed its qualities in the soil are not so good as above ground. In this connection I want to emphasize the fact that we should not make up our minds about a given kind of post on insufficient data. Samples from a given post that has been in the ground fifty or sixty years do not mean anything to my mind unless I know the condition of the other posts of the same kind in that same fence.

On the matter of the proper distances between trees, those who are engaged in the work are not at all agreed. Some advocate four by four feet, some as far apart as fifteen by fifteen feet. I think, however, that this difference arises more from the end in view than from the real difference in principle.

For example, if you want telephone poles, or tall, stately trees, you would better plant thick, but you will have to wait a little longer for returns. Whereas, if you desire quickest possible returns and do not care for poles and do not mind rough posts, knots, etc., you would better plant farther apart. So far I have taken it for granted that you do but little or no pruning. What seems to me best is to set trees about five by eleven feet. This is the distance that I am using for most of my own, though I am experimenting on other distances. My reasons for five by eleven feet are that it gives proper distance for two rows of corn or other crop to be plowed with a cultivator; it gives room to drive a wagon between the rows; it puts the trees close while small and gives a more uniform stand after thinning. Let them stand this way until they are large enough for one small post each, then cut half of the trees. This cutting, for the catalpa, would come at from six to nine years from time of setting. This leaves them ten by eleven feet apart. They may stand thus until they are ten to fifteen inches in diameter. For catalpa this would be fifteen to twenty-five years, owing to the nature of the soil. The further handling of the grove would vary with the needs and desires of the owner.

"OUR NATIONAL DEBT TO FARMERS AND FARMING."

BY HAYWARD D. GATCH, CINCINNATI, OHIO.

[Read at the Farmers' Institute held at Milford, Clermont county, December 18 and 19, 1905.]

That the nation is indebted to the farmers and the industry of farming, must be admitted by all. And when it is realized how dependent upon this industry are all other industries, it is impossible to estimate how great this debt really is. Farming is so closely allied to every other business and trade of the land, that any depression in its prosperity is almost immediately felt, to a greater or less extent, in every other line of business. A failure in crops at any time, or a partial failure in crops, is almost sure to be the cause of a decrease in the profits of all other businesses. President Roosevelt says in his annual message, "A general failure of crops would hurt all of us." As has been said, "It is the industry upon the prosperity of which the prosperity of all other industries depends." This fact is recognized today as it never has been before in the history of our country, and is splendidly illustrated in the case of railroads. Powerful and important as the railroads are in our trade, commerce and general business, and vast as is the amount of wealth they represent, and great as is the influence they exert on all trades, they look to the farmer as their mainstay, and recognize the fact that the products of the soil are their chief revenue producers. In some parts of the West the railroads depend almost entirely for their profits upon what the farms produce. Let there be one single failure in the crops of the country, and I believe that no industry would be more disastrously affected in a financial way than that represented by these powerful corporations. A prosperous year in farming brings the keenest joy to the railroad magnate, for he knows his road will do a profitable business and will make a good showing in its earnings. These great corporations should show their appreciation of what the farmers are to them, by reciprocating generously along those lines which will be of direct benefit to them, and if there is to be any discrimination in favor of any people, the advantage should undoubtedly be in favor of the farmer.

Another very apt illustration is given in the case of banks, showing what the farmers have done and how important a factor they are in the establishment of these financial institutions. Secretary Wilson in his annual report says that there have been one thousand, seven hundred and fifty-four banks established in the last year, "nearly every one of which is located in a rural community and the capital furnished by farmers. The increase of bank deposits in agricultural states and farming regions is most extraordinary."

Other evidences of the recognition of the importance of agriculture to other industries are established by action taken by the Congress of the United States and by the State Legislatures in the establishment and support of agricultural colleges, experiment stations and other agricultural societies and associations, for the benefit, not only of the farmers themselves, but for the general benefit that will accrue to the whole people by the prosperity of this industry. In order to get the best results of any art, trade or business, it is necessary to give it close application and effective study. These societies, organized for the advancement of the science of agriculture, were at first ridiculed by practical farmers, but they have since learned, and I believe today all are of the opinion, that these societies, colleges and experiment stations are among the most important of factors to the success of this science; that they have elevated the standards of the art of farming and broadened the minds of the farmers, especially along their particular lines of business. In any vocation the active, earnest, persistent, energetic and honest worker, is the man who achieves the greatest success, the one who accomplishes the greatest good for himself and mankind, and while he may be increasing his own material wealth, if he is honest, upright and just in his dealings with his fellowmen, he is, at the same time, increasing the credit due him from the nation. I thoroughly believe in the sentiment expressed by President Roosevelt, that it is necessary in this life to have a certain material basis for success, and it should be the desire of all men to leave the members of their families a little better off materially, than they were. I think it is their duty to do so. But the man who devotes his life, energies and powers, mental and physical, to the art, trade or business upon which the prosperity, success and happiness of a nation depends, while he is erecting a structure for his own material benefit and that of his family is also placing the nation under an obligation that cannot be measured. The more intelligence he uses in such a work, the more successful and more perfect will his work become, and thereby this national obligation is increased. For this reason, I say, if for no other reason, there is due to the men who devote their lives to the industry of agriculture a great national debt.

The sustenance of the people depends upon this art of agriculture, the people subsist almost entirely upon what the soil produces, they cannot exist without eating; "Civilized man cannot live without cooks," and while he "has found the earth, in almost every clime, covered with vegetation," he has also discovered that the spontaneous growth of nature affords but a limited quantity of food useful to him. It has been said, "In the most favorable circumstances, a given area of territory cannot maintain many of the human family, so long as they depend upon the natural vegetation. It is only after these plants which yield man an abundant supply of food are selected and made the object of cultivation, that population augments, and civilization takes its rise."

It cannot be truthfully disputed, that the sustenance and existence of a nation depend almost absolutely upon the products of the soil. Therefore it follows that the greater the quantity and the variety of the products produced, the greater is the power, wealth and prosperity of a country and the greater the national debt to the producer. I believe that no single industry has received more assiduous application and study in recent years than that of agriculture; and it can be justly said that no single industry has made the advance or has been as productive of wealth to the nation, as this art of farming. The great volume of products of the soil that have been placed upon the markets by the energy of the farmers, has been so large as to affect the balance of trade with foreign countries and has made this "a selling instead of a buying nation."

The figures given in agricultural reports of the value and quantity of the products produced by our farms are astounding. George K. Holmes in his article on "The Nation's Farm Surplus," published in Year Book of Department of Agriculture, 1903, says:

"As well try to comprehend the distances of the stars or the duration of eternity as attempt to make intelligible the vast quantities and value of the farm products of this country, or even of the exported surplus, which is so large as to be without parallel among the countries of the earth. The export value (the value adopted by the treasury department, being the value at the time and place of exportation) of the exported farm products of this country, was eight hundred and seventy-eight million, four hundred and seventy-nine thousand, four hundred and fifty-one dollars in the fiscal year 1903. During the preceding five years, 1898-1902, the annual average value was eight hundred and sixty-one million, thirty-seven thousand, eight hundred and fifteen dollars, and during the next preceding five years, 1893-1897, it was six hundred and sixteen million, seventy-four thousand, nine hundred and forty-seven dollars. During the last eleven years the highest value reached was nine hundred and fifty-one million, six hundred and twenty-eight thousand, three hundred and thirty-one in 1901, due chiefly to cotton."

Secretary Wilson in his seventh annual report, dated November 28, 1903, says, in reference to "The Farmers' Balance of Trade:" "During the last fourteen years there was a balance of trade in favor of farm products, without excepting any year, that amounted to four billion, eight hundred and six million dollars. Against this was an adverse balance of trade in products other than those of the farm of eight hundred and sixty-five million dollars, and the farmers not only cancelled this immense obligation, but had enough left to place three billion, nine hundred and forty million dollars to the credit of the nation when the books of international exchange were balanced. These figures tersely express the immense national reserve-sustaining power of the farmers of the country under present quantities of production. It is the farmers who have paid the foreign bond holders."

In this report the secretary gives as one reason for giving a review of our agricultural products and exports, "A desire to present to the statesmen, and to the men of affairs of this country the value and importance of this vast agricultural industry, supported by three-eighths of our working population, and contributing so greatly to the prosperity of the whole country."

No stronger evidence of the debt due the farmers and farming can be produced than the last annual report of Secretary Wilson. The increase in wealth in farm products and in the value of farms is enormous. His report reads like a story in the Arabian Nights. Four crops make new high records as to value—corn, hay, wheat and rice. The production of corn is greater than that of any previous year, its yield being two billion, seven hundred and eight million bushels, which is a gain in value of forty-two million dollars over the next highest year, 1899. The secretary admits that the array of figures and statements which he gives, as representing the products and profits of the farmers of the country, are "dreams of wealth production could hardly equal." He says: "Every sunset during the past five years has registered an increase of three million, four hundred thousand dollars in the value of the farms of this country." This seems like a fairy tale. After a summary of the enormous quantity of products raised and their values, the secretary says: "With this enormous production, the wants of eighty-three million have been supplied, with a remaining surplus constituting a generous contribution to other nations." In conclusion, the secretary says: "Should there be no relapse from his present position as a wealth producer, three years hence the farmer will find that the farming element, about 35% of the population, has produced an amount of wealth within ten years equal to one-half of the entire national wealth produced in three centuries.

The credit of this marvelous increase in the production and values of crops is largely due to the encouragement and assistance furnished the tillers of the soil by the department of agriculture, under the efficient management of Secretary Wilson. Every farmer has a right to be proud of the wonderful and marvelous developments that have been made in the science of farming. And yet this seems to be but the beginning. Secretary Wilson says: "Great as has been the work undertaken and accomplished by this department, gratifying as have been the results, be it remembered that we are still at the threshold of agricultural development." It is no wonder that the farmer should consider that he is the one who should rule.

Our nation is not only indebted to the farmers for their large share in the material development of the country and the great material wealth they have produced, but also for the important part they have taken in the normal development of our country. As a general rule, the farmer is a man of strong moral character, and has the independence of will, and the courage to stand for right at all times. The early teachings of the farmers' boys and girls were of the kind that implanted in them the principles of manliness and womanliness, uprightness and honesty. These principles so firmly planted have come down through the generations, and prominently stand forth in the farming classes today. A nation might become the strongest and greatest in material wealth and power, but if its morals are bad and its citizens lack the principles of honesty, uprightness and fair dealing, it will only be a question of time when that nation by reason of its own internal corruptness and dissensions will topple and fall. Rev. Josiah Strong in his book "Our Country" expresses the idea that if the people of a country are to govern, it is necessary for them to become more intelligent as the population and complications of the government increase, "And a high morality is even more essential." The more men become dependent upon each other, the more implicitly should they be able to rely upon each other, and the more complicated and multiplied their relations grow, the greater become the obligations and the sense of justice to each other. To quote from the above writer: "Any failure in character or conduct under such conditions is farther reaching and more disastrous in its results." There is no question but that the strength of a nation depends more upon the high moral character of its citizens than upon any other one thing. It is necessary to have material strength, but material strength without moral courage and intelligence, forms but a weak foundation to stand upon. I believe that the farmers of our country, more than any other class of people, in this respect, form the strongest bulwark our nation has.

Another important factor to a nation, is the high individual character of its citizens. To quote President Roosevelt again: "In the long run the one vital factor in the permanent prosperity of the country, is the high individual character of the average American worker, the average American citizen, no matter whether his work be mental or manual, whether he be farmer or wage-worker, business man or professional man." This individual character is characteristic of the tillers of the soil.

That nation can count itself most fortunate, which is composed of a class of citizens who believe in Christianity and civic righteousness and who believe in the honest administration of the laws of the land. All laws should be enforced and obeyed. If a law is unjust, unfair and harsh, it should be repealed, but so long as it remains upon our statute books, it should be respected and obeyed, and the one in office whose duty it is to enforce the laws, and see that they are obeyed, should not be censured for performing his duty, but the blame and criticism, if any, should fall upon the law maker. I am thoroughly convinced that it is the duty of every patriotic and law-abiding citizen to actively and aggressively assist those in office in enforcing the laws. There is probably no class of people more jealous of the laws than our farmers, and in times of great crises and important reforms, they can be depended upon to do that which is for the betterment and benefit of the country. The great majority of them are law-abiding, God-fearing, God-loving people, which means but one thing, that they form the great bulwark of strength of the nation.

They have always responded nobly to every call issued in the name of their state and nation. Whenever the military or naval forces needed recruits, the farmers sent to the ranks their most vigorous sons, many of whom have fallen on the battlefield, giving up their lives that their nation might live. They have contributed their full share to the national government in its adjustment of claims resulting from war, and in its liberal policy for the development of the country." "They never failed to regard their state and nation with feelings of patriotism and love of country unexcelled among professional and industrial people."

All honor and credit to this class of people, through whose energy and industry, more than that of any other class, our country has acquired its great national wealth, and to whom is largely due the position of strength and credit, we, as a nation, hold today.

"THE MAN WITH THE HOE."

BY QUINCY GROVE, CARDINGTON, OHIO.

[Read at the Independent Farmers' Institute held at Cardington, Morrow county, February 8, 1906.]

All modes of life have their advantages and disadvantages, but it seems to me there is nothing that presents a brighter picture than the life of "the man with the hoe." True, there are some dark spots in his life that cannot be avoided and some that can be avoided but are not, though these grow fewer each year as the farmer learns to place a true value upon himself and his occupation and, not only to estimate his power at its real worth, but to make others see the truth uttered by Washington, "Agriculture is the most healthful, most useful and most noble employment of man."

The "clod hopper" and the "man with the hayseed in his hair" are of the past, while the farmer is recognized as an important factor in our nation. Countrymen and countrywomen can go to the city without making themselves conspicuous by their uncouth dress and awkward manners. They may not equal their city cousins in style and polish, but this is not a deplorable fact, for they can equal them and often excel them in things of far greater worth, for where can true manliness and true nobility be so well fostered as where we are brought in daily contact with that truest and noblest of teachers, Nature?

Let us note some of the things that have helped to make the life of the "man with the hoe" so bright and pleasant. The granges, the farmers' institute and the agricultural fair have each played an important part in opening his eyes to the great possibilities which lie before him. They have not only been beneficial financially and socially, but have given the farmers that feeling of fellowship, which is so necessary to happiness. The agricultural paper and the many books written on the different branches of farming are rays of light that should surely be in every country home, while good literature of all classes has become so inexpensive as to be within the reach of all. Our nation has recognized the growing importance of the farmer's vocation by forming an agricultural department; our states by establishing experiment stations, and our colleges by offering the farmer boys the advantages of a regular course of study in their chosen science.

While the wife and daughters of the farmer may not have the pleasure of participating in a bargain counter rush, they may through the mail order department, now run by all mercantile houses, have some of the advantages of the city shopper. Even the city saving banks have added a mailing department for the special benefit of the farmer, and Uncle Sam is establishing routes for rural free mail delivery just as rapidly as possible.

The fact that man is a social creature has been handed down from past ages and the "man with the hoe" has always felt that he is in a manner isolated, but science has come forward with an offer of help in this matter by the invention of the telephone, and there is not a farmer today that has a telephone but thinks it one of the greatest advantages of the age.

The life of the farmer has many other rewards and advantages which that of no one else has. The air of the country which he breathes is more likely to be pure and wholesome, and to carry less contamination than the air of the city. A good constitution, keen appetite and robust health are his. Contentment and peace of mind are within his reach, if he cultivates an ambition for a steady and moderate accumulation of this world's goods rather than a get-rich-quick ambition, which is not conducive to long life.

There is happiness in increasing flocks, in growing crops, in the music of the birds, in the voices of spring, in the peep of the first frog, in the bleating and gamboling of the lambs, in the whinny of the little colt, in the perfume of the flowers, in the odor of new mown hay and fresh plowed fields, the April sunshine, the golden harvest, the good cheer of the winter fireside.

To grow up in such an atmosphere inspires the young man with ideals and emotions which bar-room literature does not appeal to, which the counting room knows little of, and to which the city resident is a comparative stranger; these are some of the advantages that contribute to true manhood and true womanhood. In the make-up of the full-grown, well-rounded product of country life they enter freely.

In our country young men as a rule make their own destinies; in Europe the mass of young men have their destinies made for them. From the tow-path and the lumber woods to the president's chair are in our list of possibilities, while in Europe positions of high honor are rarely reached by those who are known as the common people. And then the steady draft by our cities upon the country for pure and quick blood, for young men of integrity and industry is something to be prepared for. The heart of mercantile life is kept throbbing in our great cities with this trustworthy blood drawn from the country. Let not the young man who has failed to receive a college education be discouraged for a moment. If he has practical common sense, correct notions of economy, good habits and is industrious, he will succeed. While a college education is desirable as discipline for the mind, that discipline may be obtained to a large degree at home. The life and experience of a young man whether at home or at school should never be lost sight of. It is full of enjoyment, ample possibilities and great advantages.

Although the enjoyments and advantages of the "man with the hoe" are great, yet he must not shrink from duty, but must magnify his calling. This he will not do until he feels and knows that he is the peer of any in the land, and until his ranks are filled with educated, thinking men and women. By such I mean not alone those graduated from our schools and colleges, but those who have in any way acquired the power of forming progressive ideas and expressing them in clear and forcible language. Such a one if he be a moral man, is the peer of any in the land and is fitted for any position of honor or trust to which he may be called. I do not say that all farmers are destined to become great, or that all great men come from the farm, but I do say that farm life has greater advantages to develop those who have the spirit within them of reaching the top than any other calling. There is just the right blending of light and shade, sunshine and shadow, rest and labor to bring out the latent forces and develop a character fitted to withstand life's hardships and rise above evil influences and discouragements as they are met. Out of the enforced habits of early rising, and disregard for fair or foul weather, heat or cold, comes the result of a rugged constitution and an independent spirit, and from a close companionship with nature and her works and laws, and leisure time for study and meditation, comes a thoughtful and earnest purpose for life's work.

Compare, if you please, the life of a boy or girl whose associations are waving grain, lowing cattle, tree laden with luscious fruits, flowers filling the air with fragrance until every breath is a luxury, with the life of a boy shut up in our factories or mines, or even in the offices and shops. Which do you think gives the more vigor and refining influences to the forming of character?

Work is essential to both mind and body. The curse of children in villages and cities is too much idle time. Parents make the mistake of considering idleness as recreation, whereas true recreation is a change of interesting employment.

A perfect life requires a full development of the mental, moral, social and physical natures. History tells us that our country homes are the most conducive to their development.

The annals of history and biography show that the majority of great men of America were country born; that the ranks of theology and literature, of jurisprudence and medicine, have been largely filled with men who were the sons of the men with the hoes.

The Rev. Robert Collyer once made the remark, that during twenty years' residence in Chicago, he had not known of a single man who had come prominently to the front in any pursuit, who was born and bred in a large city. The leading man in every calling had been reared in the country, away from the follies and vices and the enervating influences which are known to exist in all large cities. Fashion reduces all young men and women to the same dull and uninteresting level. How much of a man is due to the qualities born in him and how much to early environments no philosopher has been able to tell us. But it is impossible to conceive of a sagacious intellect like that of Lincoln, of a glorious mind like Webster emerging from the false glitter and noisy commotion of the city. We picture Washington, the patrician sage, walking among the stately oaks of old Virginia, Jefferson in his country seat, John Adams tilling his farm in Massachusetts. These men it is true lived in a time when there were no large cities in the United States, but later we find

Lincoln and Garfield reaching the topmost round of fame's ladder, from the obscurity of country homes.

Ought not the life of the "man with the hoe" to be inspiring to everyone? He has powers which the Creator intended for him and for him alone. His life is a model. It is a picture no artist can paint. The city people are beginning to rise up and to look at him in amazement. Every class of people has been trying to follow in his footsteps, but he has outdistanced them all. The nations are looking on him with wonder, trying to see the end of his great career, but the years, days, hours, minutes and seconds are his and always will be until the nations have learned his song:

"Honor and shame from no conditions rise;
Act well your part, there all the honor lies."

"A HISTORY OF SOME FOOD CROPS."

BY MISS BLANCHE MCFEETERS, LERADO, OHIO.

[Read at the Farmers' Institute held at Lerado, Clermont county, February 7 and 8, 1906.]

The boy, when he becomes the owner of a toy, generally wants to know what is inside of it, that is juvenile curiosity; the man who meets a stranger wishes to know where he came from, that is friendly curiosity; the farmer when he begins the year's work wishes to know what he can produce and sell for the most money, that is vital curiosity; but it is curiosity for curiosity's sake to desire to know something of the origin and growth of the most important food plants that constitute the world's supply of food. In preparing this paper, I have examined two very recent books on the subject, Gannett's Commercial Geography and Willis' Practical Flora, and will briefly describe the use, geography and history of the most important food plants, especially those that have great commercial value.

Rice is said to furnish food for a far greater number of people than any other plant. The principal use of rice is as a food for man. It is used in many ways. The modes of cooking in the far East are very numerous, but the masses of Asia boil it in the most simple manner, and eat it without any sort of dressing. In Japan a beer called saki is made from it. In the East it is distilled and produces a liquor called arrack. The straw is employed in the manufacture of baskets and mattings.

Rice resembles wheat and barley somewhat, and is grown in many parts of the world, chiefly between the tropics. The best varieties grow between forty-five degrees north and thirty degrees south latitude, and the largest fields are found in southern and eastern Asia. It is generally thought that rice must be grown on marshy land, but this is not altogether true, as it only requires to be flooded a short period, about sixty to seventy days. Rice is sown in the spring from March to July, and the water is let on the land to the depth of about three inches, when the young plants are from six to eight inches high. There is no record that reveals the time when rice first became a food for the human family. The little that is known about its early history points to southern Asia as the land of its nativity. The growth of rice in the United States dates from about the year 1700. It is related that a vessel from Madagascar entered one of the ports of South Carolina, and the captain presented

Mr. Woodward, a settler, with a quantity of seed rice which he planted. Soon after this Mr. Dubois, the treasurer of the East India Company, sent to Carolina a bag of rice. From these two quantities of seed coming from different countries, sprang the different varieties of rice grown in America, one of which is now a favorite in the markets of Europe as well as America, and is pronounced the best in the world. The average yearly production of rice in the United States is valued at six million dollars.

Wheat is the most important of all the cereals, and is the only grain not used to make an intoxicating drink. Although a greater number of the human family live on rice than on wheat, yet wheat contains, in a given bulk, a much larger proportion of the elements required for the food of man. Wheat requires a cool, moist climate, and will not grow well north of the fiftieth degree of north latitude in the United States, nor south of the thirtieth degree. In Europe it grows well in Russia below the fifty-first parallel, and is cultivated with success throughout central and southern Italy; India and Argentina also produce large quantities.

No form of wheat nor any species resembling it, has ever been seen wild. It must therefore have been either very much altered from the original wild form, which tradition and probability would lead one to consider a native of some part of central Asia, or else, by reason of changes in the country of its origin, it has become extinct as a wild plant. In favor of the latter supposition in preference to the former, is the fact that, like other annual cereals, the wheat shows very little tendency to vary. The forms cultivated in ancient Egypt, in China and in Palestine appear to be identical in all respects with those we are now familiar with. The home of wheat is generally believed to be western Asia, in the countries watered by the Tigris and Euphrates, whence it has found its way into every favorable climate where agriculture is practiced. Among the ancient Egyptians and the inhabitants of Palestine, Mesopotamia and northern Syria, it is the most important crop. Wheat was not known in the western hemisphere until the sixteenth century. Humboldt mentions that it was introduced into Mexico with rice brought from Spain by a negro slave belonging to Cortez, and the same writer saw at Quito the earthen vessel in which a Flemish monk had introduced from Ghent, the first wheat grown in South America.

When the Spaniards first came to the new world they found in many parts a plant that was strange to them, and what was more strange the natives cultivated this plant extensively; indeed, it seemed to be their chief product. This plant is maize, known as corn or Indian corn in the United States; it is the chief agricultural product of our own country today. At the time of the discovery corn was very extensively grown by the Indians in both Americas, amounting to millions of bushels each year. Thus we see that this cereal is undoubtedly of American origin. It was introduced into Spain by Columbus in 1520, twenty-eight years after the discovery of the new world. Attempts have been made to show that it was grown in Asia, before this, by a figure identical with corn, found in an old Chinese book in the National Library at Paris, but Humboldt and other good authorities do not hesitate to say that it originated in America.

Indian corn is now cultivated, and is an important crop, in nearly all parts of the world, but by far the largest part of the world's crop, 78%, is produced in the United States. Last year (1905) statistics gives two billion, seven million bushels valued at one billion, two hundred and sixteen million dollars for Uncle Sam's corn crop. About four bushels of corn for every one of wheat, and over two times as much in value. The commerce in corn is comparatively limited owing to its great bulk. As a rule not more than 5%

of our corn crop is exported except in years when European crops of other grains are short.

The geographical range of oats is not so great as that of any other cereal described. They endure a colder climate than any other of the grains, and in regions of no frost they will not fruit except in elevations far above the sea. The average annual production of oats in the United States is eight hundred and twenty-three million bushels valued at two hundred and fifty-four million dollars. Their bulk prevents exportation in large quantities. Oats are grown in nearly all countries north of the tropic of Cancer. The native locality of oats is supposed to be west central Asia and east central Europe. The grain was known to the ancient Greeks and Romans and was used by them to feed horses and cows. It also constituted the food of the slaves and plebeians. It has been found in the Swiss Lake dwellings and in ancient tombs of Germany. Oats are hardy and will grow in a much colder climate than wheat or corn. In Scotland, Ireland and northern Europe, especially in Norway, oats constitute a large portion of the bread material. Until recently they were used in the United States solely as a feed for live stock, but of late oatmeal has become popular as a breakfast food. In most countries where horses are used, oats form the staple feed.

The geographical range of rye, another important cereal, is in the colder parts of the temperate regions of the world between forty-eight degrees and sixty-nine degrees north latitude all around the globe where the cereals are cultivated. This cereal is not much grown south of the equator, but seems to grow farther north and in higher altitudes than any of the other cereals except barley. It is the great cereal of northern Europe and especially of the sand districts of the Baltic provinces and the shores of the Gulf of Finland. Three countries of Europe (Russia, Germany and Austria-Hungary) produce the bulk of the world's crop of rye.

We have no positive knowledge as to when rye was first cultivated. It is spoken of by the writers of our first era. Southern Russia and the regions north of the Black and Caspian Sea are its native lands. To the north German, the Pole, the Norwegian, the Swede and the Russian, rye is what wheat is to the inhabitant of southern Europe, the Briton and the American. In early times it was largely used in England, probably having been introduced by the Danes and Saxons. The wheat introduced earlier by the Romans was regarded as a delicacy, and its use was confined to a few. History relates that hospitality among the upper classes in Great Britain was a prominent feature and when visitors came, the most lavish profusion was exercised in their entertainment. Wheat bread was one of the delicacies proffered on such occasions, but when the guest prolonged his stay he began to be treated as a member of the family and the rye bread was returned to the table. This was taken as a compliment at first, but it finally came to be understood as a hint that the visit had been sufficiently prolonged. Hence the proverb, "Do not prolong your visit till the rye loaf comes on." Rye has been employed as a food from very remote ages and still forms one of the principal foods for at least one-third of the people of Europe. Out of it is made the "black bread" of the peasantry, and it is applied to most of the purposes for which wheat is used. Rye is extensively used in the manufacture of liquor on both continents. It is also an excellent feed for the dairy cow, making one of the very best milk-producing pastures.

At the present day barley is not much used as a bread plant. It is regarded as a valuable food for cattle, but in England and Germany it is the chief beer-making grain and largely used the same way in the United States. In Holland it is the principal grain from which whisky and hollands are distilled. It is an important bread grain in northern Scotland and the adjacent isles and, with oats, constitutes a larger part of the bread material.

Barley grows and ripens over a larger geographical range than either wheat or rye, and is the hardiest of all the cereals. It ripens and yields generous crops in latitudes where no more than two months in the year are free from frost. It grows well in northern Russia and Siberia, where the ground thaws out to the depth of only two feet or even less. It will ripen also in regions of no frost, but grows best in the higher regions of the temperate zones and, like wheat and rye, is an emigrant to all the cereal growing abodes of civilized man.

The native home of barley is unknown, tradition among the Egyptians makes it the first grain used by man. They hold that their goddess Isis taught men its use. It was among the food plants used by man as far back as we have any history of human customs. A species known to the ancient Greeks and denominated the "sacred barley" was used to decorate the hair of the goddess Ceres. Some say its native country is Tartary, while others claim that it is indigenous to Siberia. History bears out the belief that its home is in the middle parts of the temperate zone in western Asia. Without cultivation it does not fruit, and when it escapes cultivation it ceases in a year or two to ripen its seed and is lost. In fact, this is the case with all other cereals and it is looked upon as a great mystery. Barley was used among the Romans as food for horses and also constituted the bread grain of the plebeian classes. Pliny informs us that the gladiators were called "hordeain" (barley eaters) because they subsisted on barley.

Buckwheat has not the importance of the other cereals, yet it constitutes the bread of a large number of people in central Asia and northern Europe. When ground it is a very popular material for griddle cakes, and it is used in northern Europe for making a dark bread, and there, too, the grain is hulled and used in much the same way as rice. It also makes an excellent feed for cattle and poultry. Its blossoms contain a large amount of honey, so that in some parts of the United States buckwheat is sown as a food crop for the bees.

The zone of buckwheat is not large. It is found in Russia, far north, and grows well in Canada and northern United States. It ill grow north of thirty-five degrees, but will not thrive in hot climates. Though it will not endure the frost, it will not fruit unless it has a temperature as low as thirty-five degrees Fahrenheit. Buckwheat is a native of central Asia and Tartary, and is found growing without cultivation along the shores of the Caspian Sea and in the valley of the Volga River. It was carried to Spain by the Moors and has spread throughout northern and central Europe, where it has naturalized. Another account of its introduction into Europe is that it was brought from Asia Minor by the crusaders. Still another account is that it was brought into Russia from Tartary, early in 1700, and thence spread through Europe.

Of all the food crops known to man there is none more remarkable than the potato, remarkable because it was unknown to civilization less than four hundred years ago, and today it forms one of the chief foods of the most highly civilized and enlightened people of the old world. It is strange indeed that this plant, being a food of the wild savage at the time of its discovery, has traveled to the eastern continent and in four centuries has become a valuable food to many of its inhabitants. It was introduced into Europe by Sir Walter Raleigh, as the story goes, and although it has been given the name of Irish potato, because of its extensive use by the peasants of Ireland, it is a native of South America. As a root vegetable for the table nothing equals the potato. In all countries of Europe, the United States and Canada it constitutes a large part of the food of the working classes and is always upon the tables of the rich. The average annual production in the United States is two hundred and thirty-two million bushels valued at one hundred and twenty-two million dollars. During the three hundred years or more which have elapsed since its discovery, the potato has steadily advanced in value, until it has reached a point of importance in the economy of human life, unequalled by any other food plant outside of the cereals. The natives of Peru, where it was first discovered, cooked it by roasting it in the ashes, but the most common way of cooking at present is boiling. It is said that the Poles excel in cooking the potato and that they practice thirty different methods of preparing it for the table.

When the Spaniards first discovered South America, they found the potato growing wild, but soon learned that it was cultivated by the natives. Darwin in his voyage to the south seas in 1840, touched at Chile, where he found the potato wild among the islands of the coast, growing in great luxuriance, with every appearance of being native to the soil, but saw nothing to lead him to believe that the natives cultivated it. In Peru, travelers report that the natives pay much attention to its growth.

The geographical range of the potato is between the thirty-fifth and fiftieth parallels of latitude, and it even produces well up to the sixtieth parallel. It grows and fruits well in any latitude where the cereals flourish. It yields best in a cool, damp climate, and the edible qualities are best where the plant is grown in rich, sandy loam.

The tomato is a native of South and Central America and is supposed to have been cultivated in Mexico at an early date. Some think it was first found by Europeans under cultivation in Peru. It was taken to Europe by the Spaniards and introduced into the United States by Europeans; it came into pretty general use in the eastern United States after 1840, and is now one of the most popular table vegetables of the country. It is in general use also in southern Europe. It fruits well in southern Europe, especially in Italy and southern France and Spain, in Greece and northern Africa. It has been taken by Europeans to the islands of southern Asia and bordering parts of the continent; It is fruited in England, but under glass. It is a very important crop in eastern United States, especially in the southeastern part of Virginia, the Carolinas and Florida, and is sent north as an early vegetable. The tomato is used raw as a salad, cooked as sauce, used to flavor soups and is found very generally on the tables of both rich and poor throughout the United States and Europe.

Of course, there are many other food plants, but I have only mentioned the most important. Those in which the farmers of this country are interested, in a general way, and not only the farmers, but the people of the cities who depend upon the country for food. Some of these crops are grown in nearly all regions inhabited by man, and where not grown can easily be transported, making this world truly a fit abode for man. Thus we see the providence of God in distributing the plants over the earth, fulfilling his command: "Let the earth bring forth grass, the herb yielding seed, and the fruit tree yielding fruit after his kind, whose seed is in itself, upon the earth."

"THE FARMER'S GARDEN."

BY C. H. WHITNEY, CLOUD, OHIO.

[Read at the Farmers' Institute held at Cloud, Morgan county, February 12 and 13, 1906.]

What I may say on this subject will be from what little knowledge I have gained by practical experience and observation, as I have never made a study of the theory or science of gardening. My love for the garden has enabled me to derive a great deal of pleasure as well as more substantial results for the time I have devoted to the work.

The first matter to be considered in establishing a farmer's garden is the location. A plat of ground having a gentle slope toward the south and east has great natural advantages; such condition will give at least a week or ten days earlier results, other things being equal, than would the north and west inclination. Another favorable condition that should not be overlooked is a wind break; this may be natural or artificial, perhaps both. If we can so select our plat as to have it lie under a bluff on the north, it will give better results than anything we can build or grow for that purpose. Then by building a high and tight fence on the west, our protection will be of a character that will not only reflect the early spring sun, thus warming and drying our soil, but will also be a great protection against frosts and chilly winds at both ends of the season. Another protection that is necessary for a garden of any kind, is an effectual poultry-proof and rabbit-proof fence. For this we prefer the woven wire for the south and east end and side. It makes no shade to interfere with the growth of plants up to its very base. We do not like a wide margin between the garden and the fence; it is but a propagating place for noxious weeds, and requires more labor to keep it clean than it would to cultivate a row of vegetables. A rectangle is the proper shape for the garden; it should be two or three times as long as it is wide; it will require a little more fence than would a square of equal dimensions, but the advantages in plowing and cultivation will more than compensate for the difference in the cost of the fence. The long way should extend north and south, for the reason that the sun in its course has a freer and less obstructed path to the roots of the growing plants; this is especially the case in all plants having an upright growth and abundant foliage.

Almost any of our different characters of soils can be made into proper condition for gardening. We think the clayey loam is the one most naturally adapted for it; it will require less artificial preparation. We think that during a period of very hot and dry weather, it has the greater ability to retain moisture, and resist the scorching influence of the sun. However, almost any of the different varieties of limestone clays can be made almost equally productive and responsive to our efforts by proper treatment.

We are very positive that for the proper qualification of soil for garden purposes, underdrainage is indispensable. This, for best results, should be thorough and systematic, placing the tiles not over thirty feet apart, closer would be better. To this proposition we will make no exceptions unless the soil is underlain with an open gravelly subsoil, which condition is very scarce in this country. The fact that our garden has quite a slope does not eliminate this need. Our experience in underdrainage proves that it not only removes the surplus water in a wet season, but is also a conserver of moisture in a drought, and will also produce a much better mechanical condition of the soil, thus making more available the fertilizing elements in the soil, or that may be applied to it.

Let us impress this underdrainage on your minds as its importance deserves, by saying that we feel sure that by thorough drainage you will double the producing capacity of any land having a tough, compact subsoil.

The last, but by no means least, item for the successful garden, is the fertility or plant food contained in the soil. This necessary factor can, perhaps, be best supplied for the farmer's garden through large quantities of well rotted barnyard manure. If your manure be well rotted and fine, be liberal with it. Do not be afraid of getting too much, even to the extent of a depth of three or four inches over the entire surface. If your soil be of tne limestone clay, this manuring and also the plowing, should be done in the late fall. Plow deep and with narrow furrows, not so deep as to bring up too much of the tough subsoil at one plowing, but get down an inch deeper than previous plowings at each time you plow until you have attained a depth of at least ten inches; deeper than that would be better. If this plowing is done in the fall, do not harrow or attempt to pulverize the soil in any way. Leave the furrows rough, the rougher the better. It will dry into tillable condition in the spring much earlier than it would if left for spring plowing. This is one of the objects of fall plowing; another is that the action of the frosts on our heavy clay soils makes them lighter and more friable, and leaves them in better tilth. When sufficiently dry in spring so that your team will not pack the soil by tramping, take your disc harrow on it, follow by a smoothing harrow and drag, and surprise yourself by the perfect seedbed you have made. If you wish to surprise your neighbors and delight yourself in results, broadcast a sack or two of high grade commercial fertilizer before your disc harrow.

We have said nothing regarding the size of the garden; this depends on the size of the family to be supplied and the extent of varieties you may wish. Do not make it too small, for a good garden under proper management will be your most profitable as well as your most interesting season's work, labor and cost considered.

As soon as the soil is dry enough to work, after the frost is out, proceed without delay to get in the seeds of the earlier and more hardy varieties of vegetables. Do not wait even for the proper moon phases or correct signs of the zodiac, but get your lettuce, radishes, peas, early onions, etc., in the ground for frosts and even frozen ground do them no particular harm. Begin on one side, and with a wheel hoe (which you cannot afford to be without), with furrow attachment, open straight furrows (be sure to get them straight), from twenty-four to thirty-six inches apart. The distance between the rows must harmonize with the character of the plants you wish to grow. The small plants, such as lettuce, radishes, onions, early beets, etc., may be planted closer than can the larger kinds, as peas, beans, cabbages, tomatoes, etc. Plant all the early maturing vegetables adjoining that the space may be utilized later in the season for some of the later growing sorts, as late cabbages, turnips, sugar corn, etc. Thus you can in a measure double the production, and also prevent the rank weed growth that is sure to succeed these earlier products.

As for the different varieties of vegetables to grow, and the different kinds of each variety, this is largely a matter of family or individual taste. You will find the more common sorts generally the more satisfactory. Especially should you avoid the extremely early and extremely late kinds, and all novelties except in a small experimental way. Choose for your main planting the kinds that mature about mid-season, and that are known to be meritorious.

The necessary tools for successful cultivation are, a modern wheel hoe with its various attachments, a sharp, light garden hoe, and a good steel-tooth rake. With these tools and your long straight rows, you will be surprised at the rapid and thorough manner in which you can accomplish cultivation. You will also be satisfied with results if your work has been done in a thorough and thoughtful manner.

I do not say that the plans here outlined are the best for the farmer's garden, but I know they will bring satisfactory results, and I think they are far in advance of the old way of beds, ridges, hills and short miscellaneous rows that used to be so common in our farmers' gardens.

"CELERY CULTURE."

BY CHARLES L. HESSE, HAMLET, OHIO.

[Read at the Independent Farmers' Institute held at Amelia, Clermont county, February 21 and 22, 1906.]

It is but a short time since all the farmer thought of raising was corn, wheat and hogs. He gave very little thought to producing those things for the table which go to make up such a large part of living and provide not only the necessaries but some of the luxuries as well. It has been found by experience that a small area of land planted to garden vegetables will produce as much in value for the table as a large part of the general crops raised.

It is but few years since celery culture was confined to a limited number of localities and few tables were supplied with this delicious vegetable. Now, the output is counted by hundreds of carloads, and it is no longer classed as the commodity of the select few, but as a wholesome and palatable addition to the fare of the general population.

In the production of celery a rich, sandy soil will give the best results. The seedbed should contain plenty of leaf mold, and the earth should be passed through a sieve having not less than six meshes to the inch. The permanent bed should be the same except that some well rotted barnyard manure may be used in place of a portion of the leaf mold. Any well drained soil will grow celery, but a loose, sandy loam is preferable. Celery grown on sandy loam or even on clay loam, will be better in quality and flavor than that grown on rich muck lands, although harder to raise. When celery is grown for market, or even on a small scale, attention should be given to proper rotation of crops. Since nitrogen forms the principle element of plant food the soil will soon become deficient in this element unless it is restored in the proper amount. This may be accomplished by the liberal application of barnyard manure, or of fertilizers which contain a large percentage of the nitrates, or, better still, by growing some leguminous crop on the plot, like clover, cowpeas, soy beans, peas or beans.

Celery not only exhausts the chemical fertility of the soil, but destroys its physical condition as well, unless treated in the manner suggested. In most cases it would be well to plow the soil as early as possible in the spring and keep it cultivated and free from weeds until you are ready to set out the plants.

Good seed not over one year old should be selected. The seed may be sown in a cold frame, or in the open air in a bed three feet wide and as long as may be desired, in rows across the bed from eight to ten inches apart. Should the plants come up too thick they may be thinned, or transplanted to another bed of larger dimensions. Shading sometimes becomes necessary to protect the plants from the hot sun, and if it becomes too dry, sprinkling must be resorted to.

The plants should not be set out until they attain a good size. The stronger the plants, the better the results. It will be found best to make the rows five feet to six feet apart and set the plants from six inches to eight inches apart in the rows. If possible when planting is done, have the soil and atmosphere in the most suitable condition; otherwise it will be necessary to give the plants a thorough watering after they are set. The land, after proper preparation, may be marked out with a wheel hoe, or similar implement and the plants set in the furrow; but if set in a deep furrow, as is sometimes practiced, mud may be washed into the heart of the plant during a heavy rain, causing much loss.

A mulch of leaves, cut straw, or well rotted manure should be placed on each side of the row, to the width of ten to twelve inches immediately after the plants are set out. This will protect the roots and conserve the moisture at the base of the plants, and also furnish food for the growing crop.

It will be necessary to practice shallow and frequent cultivation between the rows, care being taken not to destroy or disturb the mulch. A hard crust should never be allowed to form and a dust mulch should be maintained at all times in dry weather. Celery should be banked or hilled only enough to maintain an upright growth, until it has attained a considerable size when it may be blanched in any of several ways.

For early blanching, one of the most common ways is by setting up boards on each side of the row and pressing them close against the plants, fastening them by nailing strips across the top; later blanching is done by banking earth against the plants until almost covered. Celery that is designed for late keeping should be but partially blanched before being taken up; it should be removed with the earth around it and planted in a trench, or in boxes in the cellar, when it may be left to itself to complete the process of blanching.

For home use, white plume, or golden self-blanching celery will be found to be the best.

In conclusion, it might be said that more time devoted to vegetable and fruit culture on the farm for home use would add many pleasures to a country life and would be a considerable saving, since it would materially decrease the bill at the grocery for canned goods, etc.

"PRACTICAL BUTTER-MAKING."

BY MRS. W. E. BINGMAN, COOLVILLE, OHIO.

[Read at the Farmers' Institute held at Coolville, Athens county, January 26 and 27, 1906.]

As more or less butter is made on every farm, and the work of making it generally falls to the women, this subject ought to be of much interest to them. The best butter in the world should be made on the farm, but it is a deplorable fact that the bulk of country butter put on the market is of very inferior quality, and the demand for good butter in city and village is constantly increasing. Statistics tell us that three-fifths of all the country butter made in the United States is unfit for use. Kansas reports 25% of all the butter made in that state wholly unfit for use. If these statements are true, the American farm women have not very enviable reputations as butter makers.

I have been asked to give my experience and method of making butter, to tell just what we are doing in this line of work. The first consideration, if one is going to make butter, is good cows well cared for. Jerseys are considered best for this work. System and cleanliness from start to finish are essential to success in dairy work. The past year from January to August we have kept six cows, since August seven, and sometimes eight. They are given good, comfortable shelter and in cold, stormy weather are kept housed most of the time. We give them plenty of good straw for bedding, and about eight pounds of mixed ration, consisting of wheat bran, cornmeal, buckwheat bran and, part of the time, a little oil meal, all the good clover hay, corn fodder or sorghum they will eat up clean, plenty of good water, and salt two or three times a week. We try to feed them and to milk them regularly. Milking is done as quickly and cleanly as possible.

We use a DeLaval separator and the milk is separated as soon as milked. The skimmed milk is fed warm from the separator to calves and pigs. The cream is cooled as quickly as possible. In cold weather I set it out of doors and stir it for a few minutes; in warm weather I stand it in a bucket of cold water and stir it, changing the water when necessary, eliminating the animal heat quickly causes the cream to keep longer and both cream and butter will be better flavored; this is one point on which scientific butter makers place much emphasis. After cooling it, I let the cream stand at least twelve hours before mixing it, to ripen; while it is ripening I stir it frequently to thoroughly mix it, make it more uniform and insure an even ripening. When it is slightly acid and runs from the paddle in a smooth thick stream, or when a little taken on the finger looks as if it were full of little granules, it is ready to churn and should be churned immediately. This, I think, is the most critical stage in butter-making, and I believe is the point where one-half of the bad butter made is spoiled. When cream is ready to be churned a few hours delay will often seriously affect the quality of the butter.

I use a barrel churn. In warm weather I churn every morning, in cold weather three times a week. In cold weather I scald the churn, in warm weather I put a bucket full of cold water in it, let stand an hour or two, draw off, rub the inside thoroughly with salt and rinse. I test the cream with a dairy thermometer bringing the temperature to from sixty-four to sixty-six degrees in cold weather, and fifty-eight to sixty degrees in warm weather. The butter comes in twenty-five to thirty minutes. When the butter granules are about the size of wheat grains I stop churning, draw off the buttermilk, strain in about two gallons of cold water, revolve the churn a few times, draw off, and repeat. The second water will run off almost clear. If the water is very cold it is best to raise the temperature to nearly that of the butter, especially in cold weather. I now salt the butter, using one ounce to the pound. I use the paddle just enough to get the salt evenly distributed through the butter, then put the lid on and revolve the churn. This works the salt through the butter and pounds out the water. Care must be taken neither to overchurn nor overwork butter; in either case the grain is broken, the butter has a greasy appearance and it soon becomes rancid. When my butter is sufficiently worked, it is printed in pound, brick-shaped blocks. Each pound is wrapped in good, parchment paper and a card with name and address put in each package. This year I am using a wrapper with name and address printed upon it.

My butter is shipped once a week, in a crate made for the purpose. I shipped the entire summer without the aid of ice, and have been told that the butter was always received in good condition. From June first to October first I received twenty cents per pound, the rest of the year twenty-five cents per pound. From January, 1905, to January, 1906, I churned one thousand, six hundred and ninety-eight pounds. One thousand, five hundred and thirty pounds were sold for three hundred and sixty-seven dollars and thirty cents, a fraction over twenty-four cents for the year. The record is not one to boast of, but I think for an amateur I have not made a failure.

One hundred and sixty-eight pounds of butter were used at home, a pint of cream a day, and all the milk the family wanted. Sixty dollars' worth of skimmed milk was fed to the pigs, and that with the forty-nine dollars and twenty cents received for veal calves just about paid the cows' board bill. We raise all heifer calves.

There are some things about butter-making we cannot be told, we have to find out by experience. I find it is some of the little things we are so apt to neglect, thinking they do not amount to much, that are necessary to success.

The thermometer is a necessity in dairy work, guess-work is never very satisfactory and butter-making will bear no slipshod methods. All utensils used about milk and cream must be rinsed, thoroughly washed, scalded and put in the air. We must have a good supply of pride, patience and perseverance. We must find the way best suited to our surroundings, conveniences and market, then try to improve it. I will not say my way is the best there is, but it is the best I have found and it has given satisfaction to customers.

The separator has done much to lighten the work of making butter in the way of skimming, emptying, washing and scalding crocks and pans. One has only to look inside the separator bowl to be convinced that separator cream is superior to cream raised by the old process. The worst objection to the separator is the price, but I believe the money we put in it one of the best investments we ever made.

Our hilly farms are well adapted to dairying, and it is an industry worthy of more thought and consideration than has been given it. I believe if it were generally engaged in, if the forage crops that are raised were fed out on the farm, if the fertilizer were carefully saved and put back on the land, we would soon find the fertility of our farms increasing, our commercial fertilizer bills decreasing, and our pocketbooks growing heavier.

"GILT EDGE BUTTER-MAKING ON THE FARM."

BY MISS CLARA KING, NEWTON FALLS, OHIO.

[Read by Miss Hazel King at the Farmers' Institute held at Newton Falls, Trumbull county, January 5 and 6, 1906.]

All agricultural papers of the present time, have their dairy department, and are so thorough in giving points in butter-making, that the little I can say will perhaps not be new to you.

Every year less butter is being manufactured on the farm, and this is as it should be, for, while we teach home dairying, still I am a great advocate of co-operative dairying. Good butter can be, and is, made on the farm, but from lack of skill and care, or through improper surroundings, dairy butter very often lacks the finer flavor and body found in A No. 1 quality. To be a successful butter maker requires physical strength and intellect, and the power to use both. Farmers and their families have the best opportunity of equally developing the brain and muscle. I admit that we as a class do not always exercise brain and muscle proportionately.

Butter-making is no new fad or art, but one of the necessities of life, butter having been used from the earliest times known to history.

Great progress has been made in most countries in the handling of cream and milk, but in a few countries none has been made since the beginning of the world. Cream is still put into skins, a horse hitched to it, and the whole dragged on the ground, until the butter, or grease, comes. This is a method among the Chinese in the western part of the empire to this day.

Butter is not pure fat, but is a mixture, of which the following is an analysis of average samples:

Fat	84%	Water	12%
Salt	3%	Casein	1%

In good butter-making three things are necessary; first, good rich cream; second, cleanliness, and third, proper tools to work with. Was it Patrick

Henry who had a lamp by which his feet were guided, and that, the lamp of experience? Life is too short at this stage of the world's progress for us to learn everything we need to know by experience. We will have to step off the stage and give place to some one coming after, while yet in the class with beginners, unless we profit by the mistakes and successes of others. What kind of a lamp have we? It is three hundred pounds of butter, ten thousand pounds of milk, or 5½% butter fat, in other words the very best butter cow in the world, a good Jersey.

We begin milking at the same hour night and morning, and milk the cows in the same order, milking quietly, quickly, cleanly and thoroughly. Cows do not like unnecessary noise or delay. We remove the milk as soon as possible from the stable, and strain it immediately.

In our experience of making butter we have used three methods of separating milk from cream. First, gravity or shallow setting; this method is the oldest and is still used when but few cows are kept, or where ice cannot be had; second, Cooley's Cabinet Creamery; this is a very good way for deep setting, but ice or cold running water are indispensable. About eight years ago we purchased a DeLaval separator. Centrifugal separation of milk is to my way of thinking the ideal way, for many reasons. You can have good, sweet butter, free from impurities, for your table, and after you once see the inside of a separator bowl, you will never forget to keep everything spotlessly clean when working with milk. You save all the fat, or a greater percentage than in any other way. The warm, sweet milk can be fed to young stock of any kind at once before the animal heat is out of it, and is a food unexcelled by anything.

The Practical Cream Separator was the invention of Dr. Gustave DeLaval, of Sweden, one of the most practical scientists and useful inventors of the century, and often termed "the Edison of dairying." It was exhibited in London in 1879 and in this country a few years later. Within these few years the DeLaval separator has wholly revolutionized dairying methods. It has, single handed, made a successful fight in behalf of centrifugal separation, and has alone brought about the broad development of dairying and the universally acknowledged superiority of the new system to all other methods. In fact, the enormous business of this country could not be handled in any other way.

When we have enough cream for a churning, we add to it a bit of culture or starter. This may consist of a pint of sour cream, or the same amount of good flavored buttermilk, to insure more rapid growth of bacteria. (We add culture for the same reason that we put yeast into bread to start it to rise.) It is necessary to hold the cream at a high temperature, about sixty-five degrees to sixty-eight degrees Fahrenheit, cooling to fifty-eight degrees to sixty degrees before churning. We examine the cream, and when it has a smooth, glossy appearance, pours like molasses, and has a pleasant acid taste and smell, it is in proper condition to churn. We use a barrel churn and like it to be about one-third full. In buying a barrel churn most people make the mistake of getting one too small, not stopping to consider the principle of the operation of churning. Thirty minutes to forty minutes is the usual time for churning, varying with the changes of the seasons. A dairy thermometer is an indispensable guide and help. When the churning is nearly completed we add two quarts of water, a little lower in temperature than the cream. This floats the butter and allows the buttermilk to run off more freely. We watch the buttermilk as it runs through the strainer dipper, and if any butter comes with the first streams a little more churning is necessary.

When the buttermilk is drawn off, we rinse the butter with water. In hot weather the water may be as cold as possible. We revolve the churn about a dozen times, remove butter from churn and salt it. We use one ounce of salt to the pound. In working butter, we work by means of pressure, avoiding a sliding motion, as that makes a greasy, salvy butter. We work it sufficiently to expel the moisture. Any portion of the butter not reached by the salt will be light colored. In about two hours we give it the second working. In working butter but once we are likely to work too much and are apt to injure the grain of the butter.

Hot weather calls for the best skill of the maker, but unless conditions are very bad, a determined woman will succeed, even in "dog days," particularly if she has Jersey cows to furnish the milk, as Jersey butter is always more solid and better able to withstand high temperature than any other.

In conclusion, I do not hesitate to say that butter-making, according to the amount of capital and labor involved, is beyond question the most profitable branch of agriculture.

"GOOD ROADS."

BY R. B. THOMPSON, SALEM, OHIO.

[Read at the Farmers' Institute held at Damascus, Columbiana county, February 7 and 8, 1906.]

I am aware that it is very commonly said and very generally believed that everybody wants good roads. I suspect that if I should here, today, ask everyone who wants good roads to stand very few of you would remain sitting. And yet with due respect to your veracity, and to the veracity and good intentions of the thousands of other loyal Americans who insist that they want good roads, I must confess that I do not believe it. In other words I believe that though a few, individually, desire good roads, collectively we, the American people, do not. When the people of the United States have really wanted something—when they have unitedly demanded that something—they have never failed to get it.

We once wanted freedom from burdensome taxation, we wanted independence, and the Boston tea party, Valley Forge and Yorktown constituted an unmistakable answer to that unmistakable demand. We wanted slavery abolished and the disquieting question of states' rights settled, and who does not know that the demand was complied with in the echo of Gettysburg and Appomattox? In recent years those who constitute the representative head of our country heard a clear call for a shorter waterway between the Atlantic and the Pacific—and the Panama Canal will be the answer to that call.

I repeat that I do not believe we all want good roads. If we wanted them as badly as our forefathers wanted Yorktown, a bad road would be a curiosity. Why is the National Good Roads Association finding so much work to do—organizing, agitating and sending representatives here and there to organize and agitate? Why have Congressmen Brownlow and Latimer toiled so persistently, and why are they yet working so persistently to interest Congress in their laudable scheme for national aid to good roads construction? Why is Ohio's State Highway Commissioner hammering so constantly at the Legislature for better legislation and more liberal appropriations for our State Highway Department? Why need I or anyone else be called upon today to talk to you upon the subject of good roads? It all simply means, as I have just said, that we the American people, who so love to make the eagle scream, do not want good roads. Public sentiment has not yet been wrought up to the crucial point where the American people do things. And on this theory I am going to talk to you today. I am going to assume that it is not too late to present arguments for good roads.

Let us, therefore, consider some of the benefits to be derived from good roads:

Probably the first and most important service that good roads would render to the United States would be that of reducing the primary cost of transportation at least one-half. More than one-third of the people of the United States are engaged in agricultural pursuits. Great though commerce and manufacturing are they will never approach the importance of agriculture in this republic., Under the present conditions of our public highways, the estimated cost of primary transportation—I mean by this transportation from the farm to the nearest point of railway or waterway shipment—is twenty-five cents per ton per mile, and the average haul is eight miles. I do not believe that I am overestimating when I say that the average farmer of any pretensions will haul fifty tons of produce or necessities to and from his farm in a year. That makes a total cost of one hundred dollars per year. Give that farmer good roads and you save him a primary transportation cost of fifty dollars, to say nothing of the wear and tear on vehicles, draft animals and upon his own peace of mind.

Reducing the cost of primary transportation, however, does not only benefit the farmer in this mere saving but it also gives him a feeling of certainty, of assurance, that when his crops, especially of the more perishable sort, are ready for the market it will be possible for him to get them there in time to meet the demand. By meeting this demand promptly he not only insures himself a safe margin of profit the year around, but he more nearly equalizes the standing of the market for the consumer, and in this way the consumer is also benefited. Here comes in one of the strongest arguments for state and national aid in road building. Good roads are bound to benefit the man who works in the shop and factory, or at the desk or behind the counter almost, if not quite, as much as it will benefit the farmer—whether the city man drives an automobile or whether he does not. Should he not therefore be expected to share equally with the farmer in the expense of improving the roads?

While on this particular point I want to quote from an able article prepared by Congressman Brownlow, of Tennessee, one of the promoters of the good roads movement in America, on the subject "Good Roads Make Great Nations." Mr. Brownlow says:

"Present road conditions compel farmers to rush their products to market as soon as harvested, when the roads are at their best, since by waiting a convenient time they may not get there at all because of bad roads. This naturally congests the market, forcing low prices, to the great detriment of the producer and without appreciable benefit to the consumer, because the average family in town or city buys only in small quantity at one time, say a day's or a week's supply. The speculator, finding prices low and knowing that in a little while the bad roads season will be on, when competing products will be kept from the trade centers, buys up the surplus and stores it away for the day of necessity when he can demand and receive his own price for his holdings—the stuff for which men toil, which they are compelled to have at whatever cost. And when the citizen in town—the mechanic and the operative in shop and factory—is forced in winter and spring to pay exorbitant prices for those articles of household necessity which went begging for buyers at low prices the preceding fall, he figures the increased cost of living in comparison, and grows restless and discontented, and is easily led into strikes and other labor disturbances that are so disastrous to the business of the country and so prolific of other hurtful consequences. This, of course, is not all that enters into strike causes, but it contributes a full share. It is a perfectly plain proposition that the continuous, orderly operation of industrial business depends on measurably contented employes; that men are never and can never be contented when the cost of living is above their earning capacity; and that prices of foodstuffs from the farm would be always at a decent living level to all concerned if the country had systematically improved highways over which farmers could travel to market any day in the year. These farmers would then realize better prices for their products than they now do, at less cost for marketing, and still be able to sell to all classes of consumers at lower prices than are forced by speculators in the bad roads season."

That is beyond doubt the practical side of the question, and we are above all a practical people.

There is, however. an ethical and social phase of the good road question which is almost if not quite as important as the practical. Good roads will abolish isolation. If there is one thing more than another that has always been a rather effective argument against rural life, particularly with the young, it is the lack of personal association so often inseparably connected with an agricultural career. I do not say that this is a very good argument, for to those who are in love with nature and her varied forms as so happily exemplified on the farm, the lack of personal contact is not so serious. But human nature craves association, and those who love solitude are always the exception rather than the rule. Enforced isolation of unwilling subjects invariably leaves its mark and a narrow, perverted creature is too often the result. The influx of the boys of the farm to the city's stores, shops and offices is one of the nation's serious problems, though I am pleased to say that there is evidence of a weakening in the tide of recent years. Good roads would very materially lessen that inclination, for the farm boy could then live upon the farm and also enjoy the privileges of the city, thus developing that broad, stable character which contact with the soil gives a progressive people. Good roads, coupled with modern methods of farming and with modern conveniences about the farm homes, such as are now possible at moderate expense, will do more to encourage the slogan of "back to the soil" than any number of eloquent appeals spoken or printed. Emerson said: "I believe in a spade and an acre of good ground," and basing his creed upon Emerson's words the Hon. George H. Maxwell, editor of Maxwell's Talisman, is devoting his life to the noble cause of creating rural homes as a safeguard against social and political dangers. It is Mr. Maxwell's theory, and certainly a good one, that, instead of the crowded tenements and begrimed residence districts of the cities, small homes upon that acre of good ground should be made possible to every American workman, with the factories scattered about to suit his convenience instead of the present plan of suiting everything to the factories' convenience. Such a system would, undoubtedly safeguard the nation against social and political dangers and would give us a people of sturdy worth. Without doubt England's greatest danger today, and one that has already become painfully evident, is the enforced depopulation of her rural sections and the consequent overcrowding of her tenement districts. However, before Mr. Maxwell's laudable theory can be put into practical operation, good roads will be absolutely necessary. Before the workingman can live comfortably with his family in the little home on his acre of good ground and give a greater part of his time to the manufacturing and commercial interests which need it, he must be so situated that he can enjoy the benefits of rapid transit. Rapid transit demands good roads.

Good roads would immeasurably increase the opportunities for education, which boys and girls of the farm do not always enjoy to an equal degree with the boy and girl of the city. The day is not far distant when centralization of the rural schools will be generally recognized as the only correct method; when the centralized township school will not only give its pupils the advantage in theoretical, or "book" learning, that is now given the pupils of the high schools in our cities, but will also teach them the best methods of scientific farming, gardening, etc., thus training the head and hand simultaneously.

The rural free delivery of mail has already come, though it is yet in its infancy, and it has increased wonderfully the scope of daily information now possible to the resident of the farm. It is, of course, dependent very largely upon good roads.

I have given you the practical side of the good roads question; I have given you the ethical and social side of it, and now I come to the last and also a very important consideration—that of saving both producer and consumer from the grasping hand of the speculators and monopolists who would control every avenue of commercial transportation that they may fix the prices of every commodity at their own sweet will. We have already heard much of railway rebates and discriminations; we know what a struggle is now going on in Washington between the representatives of associated monopoly and the representatives of the plain people. We have heard numerous solutions to the problem presented, and we have heard arguments for and against the railroads and the trusts until we almost tire of even so vital a subject. Yet through it all we see clearly this one very patent fact: Before a railroad can give a trust or anyone else an unfair rebate or before it can discriminate in rates as between different cities and localities, it must have an absolute monopoly of the artery of transportation or a perfect understanding with other railway lines. Wherever some free and natural artery of transportation exists, such as a river or a lake or a canal, or even a good turnpike, the element of monopoly is lacking and incidentally so do we find the unlawful rebate. It costs merchants in Denver from fifty cents to a dollar a hundred more on their freight from New York than merchants in San Francisco have to pay. Why? The answer is simple. Merchants in San Francisco can be independent of the railroads. They can have a ship loaded in New York, it can sail around South America and deliver their goods at San Francisco at a less rate than the railroads exact from Denver merchants, and the railroads have to meet the competition or do without the business. Denver merchants are not so fortunate.

This is only an isolated example. There are many more which might be cited and which, by the way, the railroads readily admit, saying such practice is necessary and is justified under their system of freight differentials. The freight differential they say is a freight concession given a certain locality that it may more nearly equalize some natural obstacle and place that locality on an equal plane with some more naturally situated locality. Their reasons appear very plausible on the face, but analysis generally proves that the freight discrimination originates in the very selfish desire of a few capitalists and the lack of it is due to some natural competition which they cannot stifle. Therefore I say that if today the United States were covered with a perfect network of good roads, modernly graded and substantially constructed thoroughfares wide enough to accommodate a large traffic, the railroad question would be immediately solved. With such roads to fall back upon, producers and consumers could call to their assistance the inventive genius of this twentieth century, they could soon provide themselves with motor cars for both light and heavy traffic and, attaining a speed almost equal to that of the railway train, could deliver products of the farm and factory all over this broad land of ours, and the railroads could give everybody a square deal or go into bankruptcy.

Across the broad prairies of Illinois stretches the Illinois and Michigan Canal, once a very busy waterway, but now falling somewhat into disuse. Persistently, for years the railroads have done everything in their power to have that old canal abandoned by the State, but the farmers along her banks have been awake and they have clung to the old relic. Why? Not because they make any great use of it? No. But they know that somewhow or other so long as that canal is there and can be used the railroads are willing to haul their wheat and corn and potatoes into the Chicago markets for several cents less per bushel than they charge farmers north or south who have not a canal to fall back upon. Once or twice the railroads paralleling the old mud ditch, as they call it, attempted to be independent, and refused to haul produce for the usual price. The farmers never complained; they simply got out the old canal boats, cleaned them up, repaired them a bit, loaded their grain and other produce, and in the old approved method of mule power and tow line, hauled their stuff into Chicago, saved money and taught the railroads a lesson. Though not quite so familiar with the situation, I dare say the same thing has occurred along some of Ohio's canals. But there is no comparison with the transportation service which one might get upon good roads with powerful motor cars and the slow, antiquated service which a canal boat gives.

Therefore from any standpoint the good roads question seems to me to be a most tremendously important one, and I fully agree with Congressman Brownlow, when he says:

"National aid to highway construction as a plain, practical business proposition is, in my judgment, paramount to any question that now presents itself, or that can possibly be presented, because good roads would do more for the country than any other one thing that can be named, or any dozen or more things combined. The question is outside of and above party politics, its entire constitutionality is now almost universally admitted, and the necessity for it is present in every household in the land. It is important to every calling and condition, to every trade and profession, to every toiler in whatever field of human endeavor, to every manufacturing interest and industrial concern, to every church and school, and to the stability of the country itself."

If we could all see the importance of this question as we should we would indeed want good roads, and our demand for them would take on such tangible form that model thoroughfares in every state, county and township would become a pleasing reality instead of a somewhat incoherent, theoretical dream.

"THE SCIENCE OF AGRICULTURE IN THE RURAL SCHOOLS."

BY MISS NELLE WILLIAMS, WAUSEON, OHIO.

[Read at the Farmers' Institute held at Wauseon, Fulton county, December 15 and 16, 1905.]

The proposition to teach the science of agriculture in the rural schools is a comparatively new one. In treating the subject I wish first to call to your notice the action of the Ohio State Grange at its thirty-second session held in

Warren in December last. The report to that body by the committee of education was prepared by men and women of liberal culture, and one feature of the report was as follows: "The country school is the farmers' school, and we earnestly recommend that in it the country boy be taught some of the fundamental principles underlying the farmer's vocation." This is not all of their report on that subject but in the very first sentence a mistake was made when the farmer boy alone was mentioned. In the actual teaching you will find the girls as much interested and enjoying the study as much as the boys.

Those advocating that the elements of agriculture be taught in the rural schools, hope for many advantages and expect many hinderances and objections. The limits of this paper will not permit a detailed estimate of the value of even a slight increase in farm products of Ohio, much less in the United States. A single illustration may be given. Wheat is growing at this hour on three million acres of Ohio's domain. If by more intelligence and better methods, an increase of but three bushels per acre resulted, the nine million bushels added would pay a very large per centage of the cost of the rural schools of the state. The farmer knows that investment and labor in agriculture do not yield such returns as he sees in other lines of business. This contrast has become so marked as to cause young men and women to desert the farm for the city. It is not expected or desired that all bright boys and girls remain on the farm, but we need some of them, and if the present stampede from the farm is to be checked, better returns for labor must be realized, conditions of farm life made more attractive and the coloring of the farm homes less somber.

No one will suggest that this change can be brought about by increased hours of labor. Farmers work hard enough and long enough at present. The increased returns must be by increased intelligence in conducting farm operations, and by recognizing the fact that agriculture is a science as well as a teachable subject in our common schools. We interpret elements of agriculture in a wide way and expect finally to include observations on everything that grows out of the ground, falls from the skies, floats in the air, swims in the stream, and we hope for the introduction of an industrial and manual training course as well. The beginning should be modest and conservative; large beginnings will probably result in failure. It is hoped to enrich the course of study in rural schools by introducing the modern school garden and nature study. It is in this field that the really valuable results are expected. The school garden, under the supervision of the teacher and encouraged by the patrons of the school, may be made an object lesson by showing the possibilities of an acre and, what is of infinitely more importance, it can be made the means of awakening in farm boys and girls reverential interest in the mysterious process of nature by which seeds germinate, plants grow and flowers bloom. Much is being done in many places to transform the rural school grounds from a desert place, overrun with weeds and given up to the keeping of the pigs and cattle of the neighborhood, into a garden of profit and a thing of beauty. The school garden combines the practical and æsthetic sides of life as can be done in no other place. An acre of land adjoining the schoolyard and costing perhaps seventy-five dollars or even more, would be ample for all purposes for a district school. Teams or classes could be organized, plots of land assigned, prizes offered by patrons for the best results, based on a score of points covering economy of arrangement, neatness, tillage, ornamentation, etc.; improvement committees could be appointed on schoolroom and yard decoration; in short every school site could be converted by the pupils into a miniature model farm; crops, trees, lawns, walks and flowers outside; books, pictures, decorations and music inside. To the boy or girl coming from a home with similar environments, the æsthetic side would be satisfied and stimulated, while it would be a dream of Arcadia to the child from the home where the yard is the battle ground for the ducks, pigs and cattle, where weeds take the place of grass and flowers and where no tree casts a grateful shade, and the house is bare of books and pictures, and therefore bare of refinement. In the heart of such a one would be born higher ideals of a home, and ambitions that would give parents no rest until something was done to improve the prevailing conditions. Who can sum up the possibilities of such influence? Like the pebble thrown into the sea, the waves would go out and out until they reached the farther shore.

I imagine some farmers will say, "Well, my father farmed well enough to suit me. I can teach my boy how to farm without this nonsense. All he needs when he goes to school four months out of eight or nine, is reading, writing and arithmetic." That is where a very serious mistake is made; if people would let their children learn something more than seemed necessary to people living fifty or one hundred years ago, there would not be so much dissatisfaction among young people. Tell the boy, show him and lead him to observe a thousand and one things of interest, and if he is worth keeping in the country, he will never again think of his father's farm as being a lonely place to stay.

The question of cost should not be seriously considered when dealing with the farmer's choicest product. "Is it better?" should be the burning question. The rural schools of Ohio have done a great work, but the new needs of the farmer demands more preparation than they now afford. Every other business is conducted by men and women of trained minds and special preparation for their life work. The day when physical strength is the winning factor is past, even on the field of battle. The morning of mental activity has dawned and its rays must fall brightly upon the farmer; the farm home must be made a more beautiful and attractive place; farm life must be made a larger, fuller life, then it will be a happy life because it is free.

"SHOULD THE PRINCIPLES OF AGRICULTURE BE TAUGHT IN OUR PUBLIC SCHOOLS?"

BY GRANT LOTT, KANSAS, OHIO.

[Read at the Farmers' Institute held at Tiffin, Seneca county, January 19 and 20, 1906.]

It has been said that the tendency of our educational system has been to educate the farmers' boys and girls away from the farm rather than toward it. We see them drifting to the cities and abandoning agricultural pursuits, because from the nature of the work they have not connected agriculture with education and mental activity. The courses of study in the common schools have heretofore ignored the study of the elements of agriculture. The farmer himself, in his eager desire to educate his children, overlooks the importance and even necessity of putting agricultural science on the same plane as mathematics and other studies. He encourages them in their endeavor to learn all there is to be taught about history and mathematical science; they study the languages and learn much about Latin and Greek roots, but little or nothing about the roots of clover or alfalfa; they may be able to give historical dates in chronological order from the fall of the Roman empire to the success of the Japanese arms, but cannot tell a thing about the growth of a turnip in their mothers' gardens.

The time is at hand when the subjects which are of the most vital importance to the farmer and his children should be incorporated in our educational system. We all know that "aptitudes are developed, tastes acquired, and life habits formed during the years that a child is in the public school." This being true, every child should be taught to know and to love nature, to learn the elements and laws of plants and plant growth, to form habits of observation and to understand the principles upon which agriculture is based.

Children, with few exceptions, become interested in the different subjects taught in school. If we teach arithmetic they naturally become interested in mathematics; if we teach history and languages they become interested in these subjects. With the same reasoning, if we teach some of the fundamental truths about the soil, plants and animals, they will become interested in these and will seek new and greater truths along agricultural lines. Agriculture in the schools will help the boys and girls who expect to be farmers; it will cause them to think about their work, to use the brain as well as the brawn, and thus will be developed the educated, scientific farmer. The introduction of agricultural science in the schools would make the farm an object of interest, and would make its management and its products the subjects of our best thought and study. The time has passed when the only intellectual requirement for a farmer was sense enough to hold a plow; he must now know something of the scientific relation of the soil and the atmosphere to plant growth, the needs of plants and animals, the economy of soil culture and the conservation of moisture; he must know the elements of plant food, their office and their effect upon plant growth. Many of these things we have learned rather late in life and after years of work on the farm. We have learned many things through the agricultural papers, in our institutes and clubs, and by our own observation and experience. Why should not our children learn these lessons earlier in life and begin the training that will develop their tastes and intensify their interest in agricultural operations.

In Ohio, the boards of education are being canvassed by representatives of publishing companies, relative to the adoption of new text books in the public schools. The present contracts expire this year and the boards will be asked to adopt new books, or make new contracts for the same ones they are now using. Among the newest text books published are several embodying the first principles of the science of agriculture. They treat upon the fundamental principles underlying the most important agricultural operations. Those who appreciate the importance of this question will readily see that the adoption of these books and the giving the study a place in the regular course of instruction will dignify the science and open the way to a large field of investigation.

There are many things which we know to be facts, but do we know the reason why? We may know that the clover plant is valuable as a fertilizer for the soil, but do we know why? Do we know what elements of plant food it contains and the effect of those elements on plant growth? We may know that cultivation will cause the soil to hold moisture, but why? If we understand the principal of capillary attraction and the causes of evaporation of moisture we have learned something valuable in the science of agriculture. We may know that oxygen, nitrogen and carbonic acid gas are valuable elements of plant life but do we know what part they play in the economy of plant growth? All farmers know that the best growth and development of farm animals require grain and other foods, but do they know in what proportions these foods should be given in order to be most readily digested and assimilated? It is essential that they should know how to feed in order to obtain maximum results from the food consumed.

There are many important subjects treated in these agricultural text books which the student of agriculture, and especially the boy on the farm, should know: "The Soil and Soil Moisture," dealing with the mechanical condition of the soil, capillary attraction and evaporation; "The Relation of Water to Plants," showing how plants feed, how they grow and what food is necessary to their growth; "The Ideal Soil," showing what are the ideal conditions for the best development of plants. "How to Keep the Soil Fertile," and "Humus in the Soil," are other subjects which have called forth the best thought of our farmers and our experiment stations. The use of clover and nitrogenous plants is a very important subject in agricultural science, yet easily understood. The student of agriculture should know something of the various types and breeds of domestic animals, rotation of crops, seeds and seed germination and seed testing. These subjects, with many others, are embodied in these text books and are treated in such a simple way that they are easily studied and understood. I believe that we should urge upon our boards of education the necessity of adopting agricultural text books in our common schools. The science of agriculture should form a part of the boy's training if we expect to keep him on the farm and make him an intelligent and progressive farmer. The musician, in order to acquire skill and taste, should begin his training early in life; the expert specialist in any vocation or profession should begin early and make extra effort along the line of his specialty; so the farmer should also begin early and bend his every effort to acquire the principles of the science he expects to put in practice.

The farmer is becoming more or less a specialist. He bends his energies to the raising of some special breed of live stock or certain farm products in which he feels the most interest or which he can make most profitable, and for which his soil or his environments are best adapted.

Some people may say that there are already too many subjects taught in the common schools. In that case, say I, drop something of less importance to make room for this, for with the principles of agriculture taught systematically in our common schools we may expect that the boys of the next generation, will start out in business better equipped as regards intelligence and practical wisdom than the men of today possess. This will bring the science of agriculture up to the level where it belongs and stop the rush to the cities. Indeed it may bring about a decided rush to the country.

"IMPROVEMENTS IN OUR RURAL SCHOOLS."

BY MISS MEDA BOWYER, HAVILAND, OHIO.

[Read at the Farmers' Institute held at Haviland, Paulding county, January 15 and 16, 1906.]

In speaking of improving the rural schools I shall not refer to reconstruction. It is to be expected that there are honest differences of opinion as to the best methods of reaching results, which are in themselves desirable, in the schools, and all modifications need to be studied thoroughly and well. Success in this measure depends upon the co-operation of all who wish to see the public schools made more effective.

In the first place the board of education, which should be composed of capable men, must have full confidence in teachers as to their ability, intelligence and integrity. Not only must this exist between the board of education and those employed to instruct, but a feeling of confidence should exist in every one connected with the schools; between pupil and teacher, patron and teacher, and between these and the board of education. This will cultivate a feeling of harmony, not only among themselves, but with the public in general, and consequently the schools will be strengthened. It is also to be remarked that the character of the pupils is affected far more by the character and personal influence of the teacher than by formal religious instruction in the school, and that the development of character is the chief end of education.

What the teacher does is permanent. Wise sayings, patience and kind attention, earnest and enthusiastic efforts, are long to be remembered by those who chance to dwell under this influence, and will be stamped forever in their minds. Love for the work should be the ruling motive on the part of the teacher, and the person who intends to teach should make sure that there is in himself the essential elements which count for true manhood; that he may be a worthy and safe pattern for the little men and women whom he is to train for future usefulness. In order to govern successfully the teacher must practice self-control and rule gently, but firmly. In exceptional cases there are times when it proves necessary to use other than mild means. At this juncture the teacher should be wisely considerate and just punishment should be properly administered, but savage fierceness does not belong to the schoolroom. The teacher should be well informed, up-to-date and a progressive student, intellectually fitted for his calling.

Teachers during active service should have a salary adequate to meet the increased demand incident upon a higher professional standard and increased cost of living. There has been but a slight increase in teachers' salaries since 1902, and in this state at that time the average for men was thirty-five dollars per month, and for women thirty-three dollars per month. Of the States Wisconsin, Illinois, Indiana, Michigan, Minnesota, Nebraska, Missouri, Kansas, Iowa and Ohio, Ohio was the lowest. In Wisconsin the average payment for teaching was to men sixty-seven dollars and ninety cents, and to women thirty-five dollars and fifty cents. In Illinois, men fifty-nine dollars and sixty-four cents; women, fifty dollars and sixty-nine cents. Cannot our rich, prosperous State do a little better than fall behind? Well qualified teachers are leaving the schoolroom to obtain more paying positions.

The pupil owes to the teacher due respect and obedience, undivided attention to books during study hours, good lessons, prompt and regular attendance throughout the entire school term, and should know that the teacher is responsible for him and has the right to punish for misconduct while going to and from school as well as while in school, and to enforce strict compliance with all rules by which the school is governed.

More attention should be given to prompt and regular attendance. There are certain provisions in the laws for education which govern the attendance of pupils and heavy penalties are provided for violation of the requirements. These should neither be overlooked nor neglected. I greatly favor the movement that the State furnish all school books. There are willing little workers who would make excellent scholars were they not handicapped because through poverty or neglect they are not properly supplied with books and who, while their more favored classmates mount the ladder of success, become discouraged and turn sadly away from school life to environments better suited to their unfortunate condition, and feel a bitter sense of self-depreciation when they realize that in the race for knowledge it is often the survival, not of the fittest, but of those with the most means.

It is also of importance that choice literature adapted to growing minds should have its place in our country schools. Much and close attention to each recitation should be given. Children should not be allowed to become careless readers and the monotone habit should be guarded against. Centralization presents in itself a favorable reform in the rural schools. It has been tried and proved a success. If all rural schools were thus organized I consider that the social advantages would be greater, the pupil would have the advantage of studying subjects which it would be impossible to teach in the district school and the boys and girls could live in the country and attend school, free from the many evils and snares which await them in the city.

Much attention should be given to beautifying the school grounds; flowers and shrubs should be planted. Evergreens are pretty all the year around. There should be trees to provide shade in hot summer, and all school premises should be kept neat and clean.

Nature study is of value in the schools. The course of nature is truthfully said to be the art of God. The poet tells us that in the teachings of nature is solace for our grievances.

In these days there seems to be a craze for more amusement and enjoyment, and unless there be perpetual change and increasing variety to please, children and grown-ups too often become unhappy and discontented. The pupil should be led to understand that there is an enjoyment, a pleasure, higher and holier and more enduring than amusement. The chief end of life is to have a purpose and that purpose a holy one.

"THE SCHOOL—CUI BONO?"

BY OWEN J. EVANS, NEW BERLIN, OHIO.

[Read at the Farmers' Institute held at New Berlin, Stark county, January 15 and 16, 1906.]

The Ohio State School Commissioner in his annual report to the Governor, filed January 2d, calls special attention to the magnitude of the educational interests of the State of Ohio, with school property valued at nearly fifty-three million dollars, involving the annual expenditure of over seventeen million dollars and affecting the welfare of the one million, two hundred and fifty-four thousand, seven hundred and eighty boys and girls, who passing through our common schools will become in a few years the active citizens of this great commonwealth.

When we examine the vast and complex business in which the State is engaged for educational purposes, we would surely think that Ohio stands near the head of the states in the work of public school aid. Perhaps a closer analysis of the subject will bring us to look at the matter in a different light, and to feel a little ashamed that there is not a better showing made. I intend calling your attention for a short time to a few points bearing upon this, one of the most important topics for discussion, this vital factor in the progress and perpetuity of our state and nation, to the social unit, the home, and the political unit, the township, touching all in its influence for good.

Ohio, as noted, pays over seventeen millions to its public schools, but Ohio gives less as a state to the common schools than any other great state in the Union. Now, do not get angry when I tell you this; we are so apt to think that Ohio takes the lead in all things, that we have taken it for granted, and have lost sight of the facts in the case.

The State at present levies one mill on all visible taxable property, this levy produces what is known as the state common school fund, which fund has for the past thirty years paid one dollar and fifty cents per year for each pupil enumerated in the district; the last and present school year there has been a raise of twenty cents made, derived from an accumulated balance in the treasury of over three hundred thousand dollars. It could be used for no other purpose and with some difficulty, the Legislature was persuaded to vote its use for the benefit of the schools, so they received one dollar and seventy cents per pupil. There is another way by which Ohio schools get aid. It is from an irreducible fund. This is not state aid, as sometimes it is supposed to be; it is derived from the sale of lands set apart for school purposes. The credit of this wise provision should be given to those who so carefully planned for the promotion of education in the great northwest territory. It is only the schools of the district in which the lands are located, that derive benefit from this fund, 6% of the money being paid by the State. It is not of general application and is really in no sense state aid, the State merely paying the interest on its debt to the people of the various districts.

Missouri is the only state in the Union that pays less to the support of its schools than Ohio; with few exceptions all the other states give more aid to their public schools than does Ohio. We have the local levy in Ohio at a maximum rate of ten mills, but this is kept as low as possible by the various boards of education, and the amount of money raised depends largely upon the assessors and the boards of education. The support of Ohio common schools comes from this local district taxation and from the state taxation. Many of the states make an annual appropriation of funds for the work; the State of Washington gives five mills, New York, Indiana and some other states give special aid to weak districts which are unable to maintain their schools for eight months. Ohio should do likewise.

The teacher in the public school is a public benefactor, for the great majority of the teachers of Ohio are a self-sacrificing class of men and women, and the poorest paid workers in the state. Theirs is surely a "labor of love." Some tell us the teacher should teach for love of the work, and that it is selfish and unprofessional to talk about better salary or money. The average wages paid the four hundred and fifty thousand teachers of the common schools of the United States, according to the report of the Hon. Carroll D. Wright, United States Commissioner of Labor, is but three hundred and forty-nine dollars per year, or ninety-five cents for each day of the year; this includes the highest salaried superintendents. The average wages paid the twenty-four thousand, one hundred and ninety-seven Ohio teachers and superintendents is three hundred and thirty-two dollars a year, or ninety-one cents per day. Deducting the nearly two thousand superintendents, principals and high school teachers whose pay ranges from eight hundred dollars to five thousand dollars a year, the remaining great body of Ohio elementary teachers average two hundred and sixty-three dollars per year, or seventy-two cents per day. There are some counties in Ohio that pay less than one hundred and fifty dollars for the entire year's teaching. Does it look encouraging for young people to choose this work as a life profession? They must be clothed well, fed well, keep well, teach well. The crying needs are for better facilities and better wages; the teacher cannot live on love or wind.

I am glad that the grange is found on the side of reform and progress; it stands for good schools, and it is through its efforts that we have the primary lessons of the science of agriculture as a part of the district school curriculum, which may prove of great value to keep the boy on the farm.

There is much need of the education of public opinion pertaining to the common schools, and you are the people, my friends, who should interest yourselves in the matter, for it is of vital import to the rural schools. Our village and city schools are growing and forging to the front, while the rural districts in many parts of the state are on the decline, or at most making little or no progress. These districts must be helped so that the whole body politic may develop into a healthy condition.

My topic, "The Public School—Cui Bono," divides itself into two parts. I shall now proceed briefly to answer the question, "Cui bono?" To what end, to what advantage, of what use, for whose benefit, is the public school? I answer, the common school is a citizen maker. It is more and more becoming a fact that the home has surrendered to a large extent the training of the child in morals as well as in intellect to the school. So then the public school has become the place where the ground work and sowing of the seeds of moral life are done. Ohio demands for the work, men and women of character. A large majority of them stand on equal moral grounds with those in other professions.

There is in this training for citizenship, more than the teaching of the rudiments or the three R's. The intellect must be developed to a high purpose, the conscience quickened, the judgment trained, the heart broadened in its sympathies, so that the boy and girl may grow into noble manhood and womanhood. So then, cui bono, to what advantage, the public school? I answer that the product of the public school should be a citizenship that will be free from graft and political corruption, that will be sober, honest, and industrious, that will be helpful and an honor to our great State. The use made and the end sought by the common school is that the so-called common people may, in the exercise of their right and libetry, become the glory of our State. We have not yet reached the goal of our aims, but we are facing in the right direction for better schools.

Nothing is too good for Ohio. So let us labor for her good, striving to attain through her schools the zenith of her glory, and our children's children will rise up and praise us.

"MODERN METHODS OF HOUSE HEATING."

BY GUY B. MURRAY, NANKIN, OHIO.

[Read at the Farmers' Institute held at Polk, Ashland county, February 12 and 13, 1906.]

A complete discussion of this subject would include descriptions of at least a dozen different systems of heating and much of it would be of no practical value to any one but a house builder. However, there are three systems coming into such general use as to be of interest to everyone, and especially to those who expect to build new houses, remodel old ones, or simply improve their methods of heating. Mentioned in the order of their first cost, these three systems are hot air, steam and hot water.

Before taking these up separately it might be well to say a few words on the heating question in general. There is no reason why any farmer who wants a heater and feels able to pay for it should not have one. Furnaces and heaters are now made for all kinds of fuel and for buildings of all sizes, and if one is selected to suit the conditions and properly set up, there is no question as to its being an improvement over stove heating. Some of the more important advantages are as follows: All the rooms can be warmed so it is not necessary to shut up a part of the house during the winter months when the rooms are most needed. There is no wood or coal to be carried in or ashes to be carried out through the rooms. There is but one fire to care for instead of several. The rooms are much more evenly warmed than with stoves and the fuel used to heat the same space is usually less. Of course, if you have been warming three rooms with stoves and put in a heater to warm those three and three others beside, you must expect to burn more fuel.

The hot air furnace is the best known of the three systems named and has been more or less used for house heating for several centuries. As now made, the furnace consists of an ash-pit, fire-pot and radiator, all usually of cast iron, enclosed in a galvanized iron casing. An air space is left between the casing and other parts of the furnace, and cold air is admitted to the lower part of this space either through the casing or from a brick cold air pit underneath. From the upper part of the casing tin hot air pipes run to registers in the floors or walls of the rooms to be warmed. For the second floor flat pipes are used which will go up between the studding of a partition. One or two cold air registers are placed in the floor in the coldest or most exposed parts of the house and connected to the bottom of the furnace casing or to the cold air pit When a fire is started the air inside the casing is warmed and rises through the hot air pipes into the rooms, and cool air from near the floor passes down the cold air pipes and into the casing to replace it. It is easily seen that the size of the cold air pipe and register is of the greatest importance, as no matter how large the hot air pipes and registers may be, all the air that is warmed and passes through them must first reach the furnace through the cold air pipe. This pipe should be large enough to carry almost as much air as all the hot air pipes together. This has always been a weak point in furnace setting, and small or cramped cold air connections account for many very unsatisfactory jobs.

The size of the hot air pipes should be in proportion to the size of the rooms to be warmed and should be short and direct and have as few bends and offsets as is possible. These pipes and the register boxes should all be well covered with asbestos to prevent loss of heat and to protect the floors and woodwork with which they come in contact. For pipes passing up in partitions it is best to use those having double walls with a dead air space between although the cost is somewhat greater. Many of the furnaces on the market have a water pan inside the casing to replace the moisture taken from the air in passing over the hot castings. In some cases a part of the cold air supply is taken from outside the house. This method gives a purer atmosphere in the rooms but requires more fuel and must be regulated to suit the weather in order to get best results. Some advantages of hot air as compared with the other systems are low first cost, quick results from firing, simplicity and ease of management.

Steam heat has been used extensively in houses in this country for a number of years and when properly planned and installed gives good results. Many people have an impression that a steam heater is dangerous and likely to explode. A little thought will show that this is a mistake as a pressure of two pounds per square inch is the standard for heating work, and eight or ten pounds will heat a house in the most severe weather. This latter pressure is about the same as that at a kitchen water faucet which is connected to a supply tank in the attic twenty feet above.

A steam heating outfit consists of radiators in the rooms to be warmed, a boiler in the cellar, and a system of piping through which steam passes from the top of the boiler to the radiators, and the condensed steam or water returns from them to the bottom of the boiler. Heating boilers are usually built up of a number of hollow cast iron sections joined together, space being provided at the top above water line for the steam to collect. Each boiler is fitted with a steam gauge, water glass and safety valve. The radiators are also hollow cast iron sections joined together, with an opening at the bottom through which steam can pass from the inlet to all the sections. Each radiator is provided with a valve or valves to shut off the steam, and also an automatic air valve which is open when cold to allow the air to escape so the radiator can fill with steam, but is closed by the heat as soon as it is full. There are many different styles and heights of radiators, and each one is built to order to suit the room in which it is to be used.

As in hot air heating, the piping is an important part, especially if more than three or four rooms are to be warmed. The hammering or snapping noises made by some steam systems is entirely unnecessary and never occurs when the piping is of ample size and properly put in. As the steam gives off heat in the radiators, a part of it is constantly changing back to water, and if the pipes do not carry it away promptly it will pile up in the steam pipes and form plugs of water which the steam drives along before it. The sounds are produced when these plugs strike turns in the pipe, or when two of them come together.

There are a number of methods of piping steam, but a one pipe system is to be preferred as it is simpler than any other, requires fewer pipes, and but one valve is necessary to regulate each radiator. Every steam heating system should be fitted with an automatic damper regulator which will shut off the draft when the steam pressure reaches the desired point and open it again as soon as pressure falls below that point. The boiler and all piping should be covered to prevent loss of heat.

Some advantages of steam heat are, that it can, when necessary, be worked considerably beyond its intended capacity to warm up a house quickly. It is a very clean and healthful system, and should use less fuel than a hot air furnace. The cost of a steam outfit is usually a little less than twice that of a hot air furnace.

Hot water has for many years been used for heating greenhouses in this and other countries, but its general use in dwellings is comparatively recent. In this system a boiler, radiators and piping, very similar to those in a steam heating plant are used, but all are entirely filled with water.

The water is heated in the boiler, rises and passes through the flow pipes to the radiators where it gives off some of its heat. The cooler water from the bottom of the radiator passes back through a separate system of pipes called return pipes to the bottom of the boiler to be heated again. A continuous circulation is thus produced which begins as soon as the fire is started and is kept up until the fire goes out and the water cools to the same temperature as the air in the rooms. An expansion tank is placed somewhere in the upper part of the house and connected to the piping so water can back up into it as it expands when heated. This tank is always open to the air so there is never any pressure in any part of the apparatus except that due to the weight of the water.

The water is never heated above the boiling point, so larger radiators must be used than in steam heating, and two pipes (one at each end) are connected to each radiator to provide for the circulation of the water as already mentioned. The radiators are placed along outside walls or in the coldest part of the rooms in order to catch and warm the cold air as soon as it finds its way inside.

A hot water system in an ordinary house would need probably five or six barrels, and when this amount of water is heated to one hundred and sixty or one hundred and eighty degrees, it will keep the house warm for several hours without more firing. The slow heating and cooling of the water gives a very steady, even temperature, but also makes it difficult to warm a cold house quickly. The pipes of a hot water system cannot freeze, even in the coldest weather, while the water is in motion, but if a radiator valve is closed so as to entirely stop the circulation in the pair of pipes which supply it, there is a chance for trouble of this sort.

Hot water gives a very agreeable, even temperature, is easily cared for, and is the most economical system of heating known. The outfit is long lived and in most cases will outlast the building in which it is placed. The cost of the apparatus is usually a little more than twice that of a hot air furnace.

It is very important that a heater of any kind be kept free from ashes and soot. In a great many cases of trouble the explanation is found in the fact that the heater is so dirty that it simply cannot work properly.

As a suggestion: When you build your chimney make it not less than eight by twelve inches inside, and start it on the cellar floor, for the chances are that you will be using a furnace or heater within a very few years.

"HOUSEHOLD SCIENCE."

BY MRS. BELLE BAKER PRICE, WOODVILLE, OHIO.

[Read at the Farmers' Institute held at Elmore, Ottawa county, January 22 and 23, 1906.]

Household science claims tribute from every other, yet it is the newest of the sciences. Cooking is often referred to as an art, but that being only one of the divisions of household lore, the term science is quite fitting, embracing, as it does, not only cooking, but the chemistry of foods, sanitation and ventilation of houses, dietetics, and even bacteriology. In fact, the idea is pretty well exploded that it does not require any particular development of "gray matter" to properly manage a home, and anyone who doubts this statement, surely cannot be very discerning, or very well informed on the subject. In addition to the statement that it is the newest of the sciences, it is also the most difficult and complex, requiring, as it does, a knowledge of so many other sciences, which in reality are only stepping stones to household science.

During the last two generations, there has been a very great industrial evolution, but in the affairs of the home there has been no less than a revolution. Formerly, with the help of other members of the family, the good housewife spun and wove the fabrics used by the household, made the clothing (fearfully and wonderfully be it said), boiled the soap, made the candles, was an adept with the dye pot, preserved, baked, in short created out of raw materials the simple necessities of life. In those days, the home was the center of the universe and the mistress the center of the home with its multitudinous duties. It is well known that the great factories are now supplying the product of those old-time industries and many different hands, and much machinery have assumed those tasks, and woman's responsibility in that way is not so great, but her ambition to shine in spheres outside of the four walls of her own home quite makes up the difference, although it does not result in the betterment of home life, which, does not improve under neglect.

We all know that the best place to engender patriotism is in the home, but did you ever stop to think that the prosperity of a nation is measured by its number of comfortable homes? Not elegant homes, remember, just ordinary, comfortable ones. Those familiar with the history of Greece and Rome will tell you that while the home was held sacred the nations flourished, but when this respect was lost the nations declined. Foremost among those of our leaders who foresee a shadow of danger in our own dear land is President Roosevelt. In addressing a mothers' congress, he said: "The most honorable and desirable task which any woman can set before herself is to be a good housekeeper. The welfare of the state depends upon the proper discharge of the obligations and on the bearing of the responsibilities of woman." Bishop Lawrence, of Boston, said in one of his sermons: "Anyone who is going to do the best work in this pushing, restless age, must have a high appreciation of the sacredness, the value and the efficiency of the quiet of the home. We cannot forgive persons who give time to society or industry and neglect the home."

Wise people go so far as to say that the existence of the divorce court has its genesis from this very cause, neglected homes. It is to be regretted that so many girls lack the true appreciation of home and the things that pertain to it. But now that so many schools and colleges have adopted, and it is becoming fashionable to be interested in domestic science, as we like to denominate the work of the house and home, no doubt the threatened evils will slowly disappear, and home science become more popular. Improvement along the line of proper hygiene, knowledge of nutritive value and chemistry of food, proper ventilation, etc., has not kept pace with other sciences. Only recently has scientific study been given to these affairs, but cooking schools have been in existence for the last thirty years. Right here it might be proper to give some interesting statistics, gleaned from magazines which are authorities along these lines.

The first school kitchen in Boston (that center of culture and refinement) was opened in the Starr-King schoolhouse, on Tennyson street, about twenty years ago. Mrs. Mary Hemanway maintained this work for three years, furnishing the money herself, and the city of Boston the building.

She planned a kitchen, located in a basement room where the children of the poorest homes should receive instruction. She worked the kitchen in with the vacation school of which she was also the originator. The room was fitted with a table in horseshoe form, and was supplied with gas for fuel, and each pupil had her own little kitchen outfit before her as she began on the work so well known today. Simple, exact methods, with a reason for every process, were given and the results were a great success. Another room fitted up as a dining room, gave the children practice in serving meals as they should be served. This work was eventually merged into the school plan of the city of Boston under the head of manual training, and today girls cannot graduate from the public schools of Boston unless they have taken the course in cooking.

Gradually the idea of school kitchens has taken root in other cities, following very much the original plan. Providence, Rhode Island, was the first city to follow the Boston plan, with a Boston teacher in charge. The work is extending year by year to other cities and will certainly bring greater comfort to the homes represented. Verily, the seed sown in Boston is bearing fruit in all wide-awake cities.

In Illinois, organized work in home science is making rapid strides. The State Domestic Science Association was organized in 1898, only eight years ago. Finally county societies also were organized, and today ninety of the one hundred and two counties are in line. These county societies are connected with the county farmers' institutes, and in at least fifty counties a portion of the time of the institute is devoted to home science. In thirty-five counties, one whole session is given up to it. Some of the best speakers at the annual meetings are from the Agriculture College and Experiment Station connected with the State University. A domestic science school is held for two weeks each year at Springfield under the Domestic Science Societies of the state. But best of all, the work has been started in the rural schools and made so attractive, that while not compulsory, it has been fairly successful even though the equipment was meager. Other states have been agitating the subject, but it seems that Illinois has sounded the keynote in organized work in the rural districts. No chain is stronger than its weakest link and instruction thus scattered broadcast, is sure to result in an aggregation of strong links.

Each happy, well-ordered, disciplined household is a bulwark of strength for our country. Each shiftless, discontented family an element of danger. It is no new idea, but a well settled fact that bad cooking, bad sanitation, etc., are really at the bottom of much, if not nearly all the domestic misery, yea, often, intemperance, crime and anarchy can be traced to carelessly kept homes.

When our brethren pay so much attention to what they call a well-balanced ration for the cow, horse, sheep and hog, and practical experience and observation show clearly that it does pay, why should not the housewife keep abreast with the times and apply the same principles. Our meals surely need to be more than something to eat. Each meal ought to contain the proper proportion of heat, energy and flesh-producing elements. An author on food values, says: "If the family caterer set before the members of her household the right assortment of food so appetizingly prepared that they eat it without insisting upon less wholesome favorite dishes, she has done more to keep them well and happy than anybody realizes. The woman who caters for her husband so intelligently that his working capacity is kept up to the top notch, literally earns at least, half the family income."

If she has the faculty of preparing simple, wholesome dishes, thus thoroughly, she has done much to ward off the almost universal stomach trouble, which is a terrible indictment on the careless and ignorant cook. The average hired cook does not give thought enough to the force units in her daily menu; her idea being to prepare toothsome and attractive, rather than nutritious dishes. It is like giving a child a steady diet of candy. Of course, he will like it, but all sorts of ills follow. Again, not one hired cook in ten thousand knows that cooking is a chemical process, and that its object is to add to the digestibility of the raw materials.

What then is the remedy? Only this, the mistress of the home, fulfilling the scripture ("She looketh well to the ways of her household") must rid herself of the idea if she has it, that the science of home-keeping is a "simple art" (as a lady once announced), and can readily be acquired when occasion demands. She must inform herself better, and be ready with method, system and reason to counteract existing evils; in short, get out of the rut, train her daughters to the true dignity of household labor and prepare them to eclipse their mother in this so-called simple art. Even if one is so fortunate as to hire efficient service from others, it is expedient, and indeed necessary, to know for oneself, as that seems the only solution of the much agitated servant problem, concerning which volumes have been written. Finally, the dignity of work in the home depends not only on its spirit, but on its efficiency.

"HOUSEHOLD AIDS AND CONVENIENCES."

BY MRS. M. I. STOUT, JACKSON CENTER, OHIO.

[Read at the Farmers' Institute held at Jackson Center, Shelby county, January 22 and 23, 1906.]

The great achievements of the present day find expression in the application of science and of industrial arts to the process of actual living. Almost every monthly magazine calls public attention to the radical inventions and developments in sanitation, in engineering; and this is due to the incorporation of the results of research into different methods. If we ask a manufacturer why the American product stands so high in the commercial world he will tell us that it is due to the American ingenuity and readiness to use the latest inventions and suggestions. In the home, cooking, sewing and housework, generally, have been simplified with the introduction of utensils and labor-saving devices and in view of the present extension of the many interests of women we find that the matters of the household occupy a large place in their thoughts and studies. College courses do not put out of sight the sacredness of home, and, with the larger scope of instruction, the teaching of science and also the resources of art are brought more into the domain of family life. With the increasing knowledge of chemistry and of hygienic conditions the importance of the kitchen makes itself increasingly felt; the close relation between food and all of the vital processes is beginning to receive the attention it deserves. By the introduction of courses in domestic science through various organizations in our State University and in other states, especially through the efforts of women of western Massachusetts, household duties are being elevated in our minds. The equipments are modern throughout and the principles keep in touch with all of the latest methods of housekeeping and the newest ideas in the preparation of food. The work is thoroughly original and economical and can be procured by any who wish to make this a study and to possess the knowledge about menus for an entertainment or family living, about marketing, house management in general and especially in preparing food for the sick room which is an accomplishment that any one can be proud of.

With such knowledge and experience more than half of the perplexities of house work are solved. People of moderate means cannot afford much hired help and much is expected of the mistress of the house. She must cultivate the habit of hospitality on a scale that is within the means at her command; the future happiness of all concerned depends upon the mental attitude of the worker and nothing contributes so much towards securing good results and economizing time and strength as for woman to introduce into the every day routine of work an effort for higher attainment. As a rule not enough thought is given to having conveniences in the home and especially in the kitchen. The average housekeepers are not supposed to have the modern equipments that are in the kitchen of the White House. The object of this paper is to treat upon equipments that might prevail in homes of moderate means. There are aids and conveniences and there are things that combine both.

In order to have everything convenient about the kitchen it is necessary that we should begin at the foundation and manage the construction properly and provide for the conveniences and aids that belong to the work in the kitchen. Water, soft and hard, should be piped into the kitchen and sinks and proper drainage should be provided; with fuel and vegetables near at hand one is enabled to prepare a meal in a short time and with few steps. The kitchen cabinet is very useful in the kitchen as it holds so many necessary cooking utensils. Some one has said that it is better to have a convenient range and kitchen cabinet than to have a piano in the parlor if one cannot afford both. The mistress of the household must know the condition of sinks, cupboards and bedrooms as well as parlors. For convenience the kitchen should be medium sized with no dark closets to serve as cubby holes to gather dirt that is so apt to escape the notice of the busy housewife, especially as but few know much about bacteriology. Well ordered households are such as to promote health but a knowledge of germs would do much toward prolonging life. All kitchens should be well ventilated to remove the odors of cooking.

The housewife usually must crowd into her busy day work belonging to a dozen different professions and she is certainly entitled to all of the modern aids and conveniences that are possible for they are conducive to a long life and her life is just as necessary after a score of years as in the beginning of her work. It is also necessary that she should read the best methods of doing her work, for, as a rule, there is a lack of conveniences in the average farmer's home. The practical application of the best methods of making the hard work and monotony of rural life easier is what we need.

In country homes it is not always the best plan to patronize the laundry and it is quite an accomplishment to be able to wash well. The washing machine has come as a relief to many homes, especially where man or boy power can be applied to the handle. Soft water and plenty of it are very important accessories to the week's wash. A reliable soap should be used to insure cleanliness and prevent injury to the clothes.

In the dairy I have found a centrifugal cream separator to be quite an improvement over the old methods in many ways. Good dairy butter is always preferred to creamery butter and making good butter is only a matter of method, cleanliness being the first requisite. Churning cream at the proper time and temperature is important and the dairy thermometer is a very important aid in this matter. Suitable brushes for cleaning dairy utensils are very necessary also.

With the modern inventions that are so helpful in the home the farmer's wife can find more time to use as she chooses. Life upon the farm is considered by many to be a life of drudgery but it is in our power to adapt ourselves to circumstances and find pleasure in the work that we have to do. We should discriminate between duty and obligation, however, and save much valuable time.

Women in the country have superior advantages of looking into the higher life, stealing a moment here and there from the duties which crowd them, and thus obtain strength to continue. Lovers of music can work all the better by spending a few minutes at the piano. Lovers of nature will find that flowers indoors and out are an aid, for they are an inspiration. By their beauty they elevate our thoughts above the every-day cares of life and open our eyes to the beauties of nature.

The surroundings should not be considered as commonplace but should be lifted up and beautified with plants, shrubs and flowers. The city has many privileges of which we are deprived, with its splendid architecture and electric lights, but after all it is only man made, while the country with all its beauty is God's own handiwork.

"THE HOME."

BY MRS. H. E. ALLEN, WORDEN, OHIO.

[Read at the Independent Farmers' Institute held at Ghent, Summit county, December 27 and 28, 1905.]

I am a great pleader for the home and all that goes to make it the dearest place on earth. The United States has been called a nation of homes. In no other country do so many of the people own homes as here. Here it is the custom as soon as a few hundred dollars can be accumulated, to put it into a place called "my home," or, better still, "our home," and there gathers around and within that home all that is congenial to its inmates. We talk much about environment, and can you think of any other class of people who so nearly make their own environment and so completely control the influences of home as the farmer? It is with sadness we witness the forsaking of the farm for life in the city, and, in many cases, the engaging in occupations far inferior to that of the farm.

If I only had the power to show you the superiority of our homes here in the country over the finest in the city! The country represents everything that is noblest and best in our civilization. Just think how free we are from those silly, sensuous and harmful pleasures that drown men's souls in perdition and ruin the home. Do you ever stop to think how free the country is from those great hordes of southern and western Europe that have flooded our cities with their ignorance, poverty, vice and squalor? How many of us have even the faintest, actual knowledge of slum life or abject poverty? How simple is our home life, how unostentatious our hospitality. Think how pure are our common schools. Foul pestilence and the fouler politician never attack them. The welfare of the nation is never menaced in the country, for no hotbeds of anarchy are here. Many of the noblest people in the world live in our cities, but when the law of average is applied the country is far ahead. The city is only able to project and carry on its work by drawing on the country for its choicest young men and women.

Now, if we would keep our country homes all that they should be, would call forth all that is good, true and noble within us, home must be made more than a mere place to stay. Every energy must be given to make it the dearest of all places. How sad to think of the many homes going down today because of the growing evil of divorce. For every three hundred and fifty married couple in the United States there is one divorce, or more than one hundred and twenty thousand divorces in a single year. What does it mean? Why thousands of ruined homes, thousands of sad, blighted lives and broken hearts, children worse than orphaned and a general lessening of respect for the marriage vows of our people. This growing evil is surely a menace to the home. What can we do to stop this evil, for country as well as city is affected? How strong is our nation in all that goes to make a nation strong? No stronger than the homes. How pure, how elevating the society about us? No purer, no more elevating than the homes about us. How powerful for good, how spiritual the church? No more so than the homes that compose its membership. Some one has said, "it is only sin that can wreck a home," and is it not true? No misfortune however great will cause its ruin unless it has sin for its ally. Misfortune draws the family closer together, making home a blessed reality. Sin brings discord, strife, disgrace and separation.

We have gathered here today that we may learn and take advantage of every improvement and facility to make farm work more profitable. It is right, for it shows to the world that the American farmer is wide awake and progressive. But may I tell you farmer friends the farm and its work are but secondary to the home and the welfare of our children. It is well to take into consideration the wise building and painstaking carefulness that go to make home really and truly happy. Never think a happy home comes as a matter of course wherever a family happens to abide. Happiness has to be planned for, lived for, sacrificed for, prayed for, yes, often suffered for. Never think happiness is dependent upon one alone. The husband has much to do in solving the problem. I wonder if a man always thinks of his great responsibility when he takes the young wife away from that dearest of all places, her father's home, away from father's care and mother's love, and leads her into a new home where his love, his care is henceforth to take the place of theirs. No man is fit to be the husband of a true woman, who is not a good man. He need not be great, smart or rich but he must be a good man or he is not worthy of the life he has taken into his keeping. Then he must be a man true, brave, generous and industrious. He must be willing to provide as far as lies within his power. How many a husband has it within his power to provide that which will bring comfort and pleasure to the home, but selfishly withholds it. Every dollar is hoarded until death, then how often it goes to the four winds. The husband must be a sober man. No man who becomes intoxicated is doing his share to make home happy. The husband who would be respected in his own home must be pure and sober. And right here may I say that the saloon does not menace the welfare of our country homes as the cider barrel does. Oh, husbands, you have a great deal to do towards the maintenance of a true, happy home.

The wife, too, has great responsibility. She should understand at the very beginning that good housekeeping is one of the secrets of a happy home. If we require the husband to be a good provider we must not be careless or improvident. I think no woman should marry until she has learned or is willing to learn the fundamental rules of good housekeeping. In so many homes there is a tendency to ignore this. Daughters are instructed in music, painting, fine needlework, or given a business training, but the simplest details of housekeeping are kept from them as unnecessary or too difficult. The Youth's Companion tells of a young girl fresh from college, bright, accomplished and attractive, who was about to marry a young bookkeeper: "I cannot cook and I do not want to learn." "Never mind," says the young lover, "we shall keep a cook and I can make good coffee." What do you think of her qualifications as a housekeeper? You say she would not do for a farmer's wife, then neither would she do for the bookkeeper. The same article asks this question: "Do women know that half the illness, crime and insanity of society is due to avoidable errors of diet and that the reputation, happiness, intellect and health of their families depend upon their intelligent management of affairs? I would not for one moment take away from the wife her knowledge of music, painting or any art in which she is clever, or her college education, or knowledge of business but first of all she should be a good housekeeper and a good homekeeper. Money sometimes hires the good housekeeper but never the homekeeper. Neither should our time all be spent upon what we shall eat and what we shall drink and wherewithal we shall be clothed. For we, as wives and mothers are the leaders, the teachers of true nobility of soul, of all those noble qualities of life that will not fade with time but endure throughout all eternity. The best, the truest, the noblest husband in the world cannot make his home happy if his wife is not in every sense his helpmeet. The greater responsibility rests upon the wife, so home happiness depends more upon her.

Children, too, are great blessings when God sends them, bringing into the home many possibilities of happiness. Our Saviour blessed little children and likened the kingdom of heaven unto them. Of course, they cost care and demand toil and sacrifice, yes, and often cause pain and grief. They may prove to be wayward and ungrateful, but let us do the best we know in all ways for their good and we will be rewarded for our faithful efforts; possibly not in ways of our own planning but in the Father's way if we are trusting Him. To the young wife pleasures allure and children seem a bother. But how our ideas change as the years pass away. Pleasures outside the home do not mean so much, and oh, for somebody to care for us, to love us, who will not fail us. A lady who had a beautiful home and everything that money could buy was telling me how lonely she was. "Not one of my own to be with me or care for me." I have thought of it so often. Her loneliness was worse than disease. No son to say, "What can I do for you today mother?" No daughter to cheer and comfort in so many ways as only a daughter can. A hired servant to care for her when sick, to do all that must be done. Where in such a time are gay companions and worldly pleasures? Do not look upon children as a burden. Much of home's happiness is made by children. They train us and bring out what is good in us oftentimes more than we do the same for them. Our lives grow richer with children about us. Yet we do not always know their value while we have them with us; oftentimes it takes the empty crib or the vacant little arm chair to reveal to us how much happiness children bring.

I have said much of the love and affectionate regard that should be in our homes to make them truly happy. I verily believe there are hundreds of homes in which there are hearts starving for love and attention. One bears the burden alone. Sometimes it is the husband and father who is looked upon by the family as a sort of money-making machine; sometimes it is the wife and mother who is the drudge for all. The love and sympathy which should exist between parent and children lies dormant. The home life is cold, selfish and unsympathetic. There is so much in so many little ways that we can do to make the burden lighter and set the chords of love ringing through all the day. Should we not think more about this part of home life?

One thing more I must speak of that is affecting the country home and that is the observance of Sunday. It is alarming to note the indifference and negligence we as country people have fallen into. The nation looks to the country for all that is strong and helpful. We can never be strong if careless and indifferent here. "It is righteousness that exalts a nation." It has been proven again and again that proper observance of our rest day develops the highest and noblest type of manhood and womanhood. If we would send our sons and daughters out into the world as strong men and women we must be wise in this matter. How much good in the ride to church, the sermon, the music, the meeting with friends, the Sunday school lesson. How often we forget the toil and care of the week and Sunday becomes the golden link in the chain of days. We know that on the farm Sunday makes no difference with many of the chores but the farmer if he will can spend the day in chores and sleep and at night will have made no progress in that which is higher and nobler. In many homes tasks are left to do until late Saturday night or Sunday morning, thus depriving the family of the privileges the day alone brings. We can ill afford to spend the day in any way detrimental to us as individuals or as families. Let us appreciate the day and by good management get all it has in store for us.

Now, in conclusion, may we be glad we live in God's beautiful country, pure and free; that we forget not our mission of making other hearts happy and our homes all they should be. Remember our influence is eternal, and may our homes here be but a foretaste of that Home whose builder and maker is God.

"THE VALUE OF PLEASING MANNERS."

BY MRS. W. E. SCOTT, MONTPELIER, OHIO.

[Read at the Farmers' Institute held at Montpelier, Williams county, January 5 and 6, 1906.]

Were I to request all in this room who believe that a pleasing manner is of great value to an individual to signify that belief by rising, I am quite certain that none would remain seated. But, were I to ask this question: How many of us are daily, in our home life, conscientiously striving to perfect our own manners and those of our children? I fear many of us, myself included, would be compelled to answer, "Not I."

Most of us, yes, all of us, to a greater or less extent, do realize the value of pleasing manners. Yet it seems so easy to neglect their cultivation, and in the bustle and hurry and worry of everyday life, we too often neglect the little courtesies and kindnesses which might brighten the whole day for a loved one and give us a tenderer, happier feeling in our hearts. We are very much given to regarding the details of etiquette, as trifles, but, it must be remembered that trifles make up the aggregate of human life. The rudeness or neglect of which some person may be guilty is often remembered while a great act performed by the same person is forgotten. Is it not asking too much of the dear ones in our homes when we continually excuse our thoughtlessness and rudeness by saying, "Oh, well, you know I didn't mean it. You know me so well—you certainly understood what I meant. I have not time for so many trifles. I mean all right." We must not expect our nearest and dearest ones to always take us for granted.

Many persons have a strong prejudice against the word "etiquette" and associate it in their minds with artificial and affected manners and insincere speeches, a system of airs and graces too frivolous for sensible people to adopt. Many others regard the little formalities of polite society as harmless little affections, conveniently worn, like jewelry, on special occasions, but very inconvenient for everyday life. Others have discovered that good manners are admirable at all times and that tact and courtesy are always good social policy, yet seem to have no conception of the fact that manners and morals are in any way related. Really, every point of good manners, according to the recognized code, has its meaning and conveys a social message. If you study in detail the rules of etiquette, every point noted will be found to have its meaning, just as truly as every word in the dictionary has its definition.

Possibly many of us have asked ourselves, why is a formal code of behavior necessary? I would answer: It is a convenient basis of prompt mutual understanding. Without it the social circle would be in confusion. Were each one to act according to his own whims and impulses we should never know what to infer from the odd behavior of each individual. As it is, good manners are current coin the world over. It is a systematic saving of time and thought. When one knows the correct thing to be done, and does it, no further anxiety or thought is necessary. A busy person who has large social responsibilities, values this advantage. It prevents misunderstandings and their consequent disaster. The importance of this is shown in diplomatic circles where official etiquette is imperative. Admiral Dewey, on his homeward voyage from Manila, exchanged the official courtesies required by international etiquette at every foreign port en route. Imagine what endless mischief he might have set brewing if he had neglected these formalities. People misrepresent themselves by their own heedlessness and complain that they are misunderstood. They might be perfectly well understood if they would take pains to show themselves friendly in ways that are universally accepted as the language of friendliness.

Having shown the reasons for the existence of a formal code of behavior, let us consider for a moment the benefits which will come to us and our children from a careful study and observance of this code.

It fosters self-respect and inspires culture. The personal bearing of the well bred man is the bearing of a crown prince. It commands the respect of others. Treat a man or boy as though he were polite and he will often feel compelled to live up to what you are good enough to expect of him. It was this quality of culture, the ability to command respect of ignorant or hostile people, that enabled Mrs. French Sheldon to make that wonderful tour among the African tribes some twelve years ago, alone and unprotected. It is stated that not once did she receive an insult from her various escorts or from the natives.

By reflex influence, it has a moral effect upon the character. One who conscientiously cultivates good manners will find that he is also cultivating a magnanimous disposition. If a woman cannot on the instant feel as polite as she ought to act, it is a distinct step in the right direction for her, on principle, to act as polite as she ought to feel. A recent English writer says: "Etiquette may be defined as the minor morality of life. No observances, however minute, which tend to spare the feelings of others, can be classed under the head of trivialties." Politeness is but another name for genial amiability, self-denial and unselfishness. In cultivating these qualities we are cultivating our characters.

Can anyone fancy what our society might be if all its members were perfect gentlemen and true ladies; if all the inhabitants of the earth were kind hearted; if, instead of contending with the faults of our fellows, we were each to wage war against our own faults? Good manners, culture and refinement are the surest passports into good society. Indeed, good manners are even more essential to harmony in good society than a good education, and may be considered as valuable an acquisition as knowledge in any form.

A good manner is the best letter of recommendation among strangers. Emerson says: "Give a boy address and accomplishments and you give him the mastery of palaces and fortunes wherever he goes; he has not the trouble of earning or owning them; they solicit him to enter and possess."

If we cannot afford to give our boys and girls the accomplishments which we should like them to possess, we can give them something still better—something, for lack of which they might forfeit their place in good society, even if possessing the accomplishments.

True, rudeness in some people is tolerated by polite society, but only because those people are exceptionally bright in conversation or very talented in some special art. Dr. Johnson was one of the brightest minds which England ever produced, but he was rude, gruff and so untidy as to be positively repulsive at times. His rudeness secured for him the nickname of Urso Major. Only his close friends knew of his nobleness, courage and kindness of heart. Goldsmith truthfully remarked of him: "No man alive has a more tender heart, he has nothing of the bear about him except his skin." Sometimes a talented musician or artist is tolerated in good society, yes, even courted and petted by society, though he may be positively rude and uncivil. But certain it is, he never does win the warm friendship and sincere admiration for his manly qualities, which might be his to a marked degree if he were courteous, genial and manly in his bearing.

Having thus discussed the value of a pleasing manner, let us ask ourselves when and how shall the teaching of manners begin? As to when the teaching of manners should begin, my prompt answer is, long before the child is born. None of us dispute the fact that children inherit, as a rule, the good or evil characteristics of their parents and their grandparents. For this reason, people whose ancestors have been cultured and refined and of pleasing manners, will be very apt to have children who are naturally polite and thus fall easily into the ways of well bred people.

As soon as the little one becomes sufficiently familiar with the older ones about him, and of an age when he desires some favor from them, though he can scarcely lisp a word, at that time he can be taught to say "please" and "thank you," or at least indicate the "thank you" with a nod of the little head. Instructions in table manners must begin when the child sits at the table and begins to eat. The teaching of table manners is one of the important points in a child's education. There are few prettier sights than that of a little child learning to use its first knife and fork. As the schooling goes on, the little one grows into correct habits of holding his fork, arranging his napkin, the nice handling of his bread and butter, etc. What he learns at this age he will never forget. As he grows older it will be easy to teach him that politeness at the table is shown, also, by thoughtfulness in helping others.

Watch carefully his daily behavior about the house; have patience, remember that it is a growth of years not moments; teach him to move about the house deftly without elbowing others or striking the furniture, to open and close doors without pushing or slamming, to go up and down stairs and through halls with a light step, to avoid boisterousness, to be neatly dressed and promptly on time at meals; to be thoughtful not to monopolize the coziest chair or the favorite window, to guard against clumsy accidents rather than weary people with the tiresome "beg pardons." Your son or daughter who is ill-mannered at home can never be well bred in general society.

It is not a difficult matter to convince a child that he owes it to his parents as well as to himself, not only to be, but to show himself to be, correct in taste and habits; that the eyes of people whom he meets and mingles with are to be his first critics; that to "pass muster" with them, he must be cleanly, for a well bred person never neglects the bath, the nice care of the skin, the hair, the teeth, the nails, etc. Toilet requisites cost little but the trouble of using them, and although the face be sunburned and the hands stained by work, both hands and face can be kept refined by habitual daily care. With cleanliness we can teach neatness and propriety in dress. The eyes of others will also note the pose and facial expression. Nothing shows self-possession more than quiet, deliberate movements, while scowling, squinting and pouting are never indulged in by well bred persons. Then, there are other critics—the ears—and very acute critics they are. What do they demand? That the voice be clear, the utterance distinct and the language polite. They forbid loud, harsh tones, coarse speech and vulgar slang phrases. An uncontrolled voice always betrays a lack of self-control.

Much can be done by the teachers in the public schools in educating our boys and girls in ethics and manners. The teaching of these subjects will form a part of the daily school work in all the educational institutions of the twentieth century. It is not uncommon, in some of our city schools, to give pupils special drill in manners.

Many times boys and girls will give heed to such instruction from the teacher in the schools, when they would give little or none to the same instruction from their mothers. They, perhaps, are inclined to think, at times, that mother is old-fashioned in her views of good manners or too particular. The teacher who instructs her pupils in etiquette and lives up to what she preaches, and herself sets a good example, and treats her boys as gentlemen, her girls as ladies, has, to a great extent solved the question of school government, while the influence she has exerted upon her pupils and the desire she has created in them to be gentlemanly and ladylike, is often of more value and more far-reaching in its results than the education received from the school text books.

How can we best teach manners to our children? By example and precept; by entertaining guests in our homes; by telling them incidents in the lives of men and women who have been noted for their charming manners. Parents are responsible for their children's behavior in the home. Precept is much, but example is all-powerful. Where is the value of coaching children in good behavior if the parents constantly set contrary examples? A little girl who was going to a party, was told, among other things, that she might accept a second piece of cake if it was offered, but that if it was handed to her a third time, she should say very firmly and very politely, "No, thank you." When she came home she reported that she had obeyed all instructions. "But," she added, "the servant brought the cake the fourth time." "What did you say?" asked the mother. "O," said the child airily, "I just said what papa always says, 'Oh, take it away and don't bother!' " So, in spite of precautions, the home manners asserted themselves as they usually do. Parents must not only tell a child what to say and do, but first by example and then by explanation make clear to the inexperienced youth the meaning of formalities. Thus he will learn that when he says "please" and "thank you," he is showing respect and appreciation. He will understand that when he moves a chair for his mother or brings the morning paper to his father, he is obeying the code of etiquette in doing an acceptable service in a courteous manner. He will grasp the idea, that to be a gentleman in behavior, he must first be a true-hearted man, for that is what it means. Children must be taught in the home, that consideration for others underlies genuine courtesy. The form of courtesy may treacherously desert one at critical moments, but true politeness may always be relied upon. To talk of children in their presence makes them self-conscious and robs them of the simplicity that is their greatest charm.

The least shade of disrespect or impertinence should be checked at once. American parents are not considered good disciplinarians. An Englishman once jestingly remarked: "In the States parents are sent to bed for 'answering back.' " In France young girls are trained in winsome, attractive manners. They are careful to stand aside to permit their elders to pass first. They do not sit while any one is standing, and their deference in conversation is always noticeable. It was for a French woman that the word "charming" was coined.

Children who are not obliged to be habitually polite to their elders, and to one another, will not suddenly become well bred when strangers are present. When the family circle is by itself, much of the formality of courtesy may be laid aside, but the courtesy, never. Were we to eliminate etiquette from our homes, we should soon find it attended by marked rudeness.

Among influences that mould and refine young persons of the household, is the entertainment of welcome guests. Those accustomed to the presence of visitors usually have more pleasing manners, are more at their ease, and consequently more graceful and tactful than those who have not this advantage. Entertaining visitors unifies a family, all being pledged to the same end, the gratification of the guest. A slight increase of formality is necessary at such times and it must not be ridiculed as "company manners." This stranger who is visiting in the home does not know us as well as we know each other, we must take special care that he does not misunderstand us, hence many strict points of etiquette are observed with the guest which the members of the family by common consent dispense with when by themselves.

If good-manners are expected of children, they must be treated courteously. Any little attention or kindness extended by a child to an elder should be courteously acknowledged. A home may have the elegance of high breeding, no matter how simple the surroundings.

History repeats over and over again examples showing that it is the bearing of a man toward his fellows which, more than any other one quality of his nature, promotes or retards his advancement in life. Fascinating stories such incidents in history are, and of such interest that children do not easily forget them. Tell them of Lady Elizabeth Hastings, of the Duke of Marlborough who, by his charming manners, often changed an enemy to a friend, and by whom to be denied a favor was more pleasing than to receive one from another; tell them of the gracious manner of Charles James Fox, of Lord Chesterfield, of Sir Philip Sidney, the "gentleman and idol of his time," who, when dying on the field of Zutphen, gave the water brought to him to a dying soldier lying near him, saying, "Take it, friend, thy need is greater than mine;" tell them of Washington, the father of our country who deemed pleasing manners of so great value that he drew up a code of behavior to regulate his actions in the home and society, and strictly adhered to them all his life; get a copy of those rules for your children to read, they will do so with interest and will discover, almost for themselves, that though the form of courtesy may change with the passing years, the courtesy itself, the true kindness of heart, never changes.

And now, having discussed the value, the when and how of our question, let us hear the conclusion of the whole matter. We fully appreciate the value of a gracious manner; we know full well that it can be acquired only by careful, daily observance in our homes or wherever we may be; we acknowledge that it ought to form a part of our children's education and that by neglecting it we deprive them not only of a fair position in good society and a passport among strangers, but, very often, of certain fine traits of character; with all this, we also admit that by neglecting the education of our children in etiquette, we are depriving ourselves of a factor which renders government and discipline in our homes and schools comparatively easy. Does it not seem strange then that this part of our children's education is so sadly neglected by a large majority? Are we not, as a nation, poor disciplinarians? Is it not worth our while to give this subject its due share of our time and attention? Truly, it is time for us, as parents and teachers, and as Americans, to look carefully to the cultivation of good manners both in ourselves and in our children. Let us remember that the first law of good manners, the one which epitomizes all the rest, is, "Thou shalt love thy neighbor as thyself." True courtesy is simply the application of this golden rule to all our social conduct. It may be met in the hut of the Arab, in the courtyard of the Turk, in the hovel of the freedman in the cottage of the Irishman. Even Christian men sometimes fail in courtesy, deeming it a mark of weakness, or neglecting it from mere thoughtlessness. An old English writer once said reverently of our Savior: "He was the first true gentleman that ever lived." The influence of many good men would be more than doubled if they could manage to be more courteous and gracious in their manner, less stiff and more elastic.

Courtesy in society, it has been truly said "is like the silent influence of light which gives color to all nature; it is far more powerful than loudness or force, and far more fruitful. It pushes its way silently and persistently like the tiniest daffodil in spring, which raises the clod and thrusts it aside by the simple persistence of growing."

"WATCHMAN, WHAT OF THE NIGHT?"

BY MRS. LETTIE C. OSMER, WEST FARMINGTON, OHIO.

[Read at the Farmers' Institute held at West Farmington, Trumbull county, December 15 and 16, 1905.]

One prominent characteristic of the human family is a desire to see into the future, to draw aside the vail so kindly placed by a loving Father between us and coming events, whether they are to bring us joy or sorrow; the very fact that the future is a mystery spurs us on in our speculations. We have no way of judging of the future but by the past, and so we will take a retrospective view and note the progress of the world during the century recently closed.

We all read of the wonderful advances made in the arts and sciences, in all industrial and educational lines and we ask, What can the future add? Today I will take up an entirely different line of thought and ask you to go with me over the paths women have trod in the past century. The ninetneeth century has been aptly called the woman's century, for during these years her emancipation proclamation has been written, and today she asks, "Watchman, what of the night?" and the answer is wafted to her ears, "The morn cometh."

At the beginning of the nineteenth century property rights were unknown to women, married women were not permitted in any country to control their property, nor to dispose of it by will at death; to all intents and purposes it did not belong to them. The common law of England and the United States, held husband and wife to be one and that one the husband. He could control her property, collect and appropriate her wages, select food and clothing for herself and children, say what their education should be, and in what form she and her children should worship God. If the husband and wife differed in religious belief the courts held that the children should be taught the husband's belief, and that the mother should teach it to them even though she did not believe it. If she differed with him or offended him in any way he had a legal right to punish her, but the courts decreed that in whipping her he must not use a stick larger than his thumb. Widows and unmarried women who might possess a bank account dared not go to a bank to transact their business but must employ a male relative or agent. Along educational lines, no college in the world admitted women. The men had so long done the thinking for the average woman it was universally believed no woman was capable of mastering the higher branches. In convents and boarding schools the daughters of the rich were taught the rudiments, good manners and polite address; music and dancing were the accomplishments; the daughters of the poor seldom received any education at all. Women were not allowed to pray or speak in the churches, and in some places were excluded from the choir.

Rosseau said: "The education of woman should always be relative to man, to please, to be useful to Us (with a big U), to make Us love and esteem them, to educate Us when young, to care for Us when grown up, to advise, to console, to render Our lives easy and agreeable. These are the duties of woman at all times, and what they should be taught from infancy."

Dr. Gregory's "Legacy to My Daughters," was commended as a guide to conduct. He said: "If you happen to have any learning keep it a profound secret, especially from men, who look with a jealous, malignant eye on a woman of great parts and a cultured understanding."

Do you wonder that Mary Wollstonecroft wrote her "Vindication of the Rights of Woman" and pleaded for greater opportunities, especially education, for woman? She said: "Women cannot be injured by the experiment, for it is not in the power of man to render them any more insignificant than they are at present."

In 1808, in Knaresborough, England, a man sold his wife for a sixpence and a quid of tobacco, and the newspapers said such things were getting too common.

In the industrial pursuits very few had the moral courage unless made necessary by actual need to seek employment; in 1809 thirty-five women and children were found in the factories in the United States. In the professions how was it? In 1833 Oberlin College was opened on the co-educational plan, forty-four scholars were enrolled, fifteen of them were girls—this was the first college to offer higher education to girls. As one instance to show the change in public opinion, fourteen years after this, Lucy Stone graduated at Oberlin College, but was told that one of the professors would read her graduating essay, as it would be " indelicate" to read it herself before a mixed audience. She refused to have it read for her. Thirty-six years after she graduated the trustees of Oberlin invited her to give the chief address at the fiftieth anniversary of the opening of the college.

In 1848 Dr. Elizabeth Blackwell was graduated in medicine at Geneva, New York, the first graduated woman physician in the world. Upon her application for admission the faculty left the decision of her entrance to the students, expecting it would be adverse, but she was unanimously elected to admission. Then began her persecutions, the women at her boarding house refused to speak to her during her three years of study and would pull their skirts aside when meeting her for fear of being contaminated by contact with her. The study of physiology was considered "indelicate."

In 1850 Antoinette Brown was graduated in theology at Oberlin, the first woman in the world to receive this distinction. But as "new occasions teach new duties" so all these abuses found those who rebelled against them and demanded more freedom and the right to think and act for themselves.

You who are today so welcome in the ranks of the temperance workers, and on whom devolves so much of the work must not forget the debt you owe to the women who first engaged in the work at the time of the great excitement in 1852 and 1853. The Sons of Temperance held a convention at Albany and invited the Daughters of Temperance, but when one of them, Susan B. Anthony, arose to speak to a motion, the chairman informed her that the sisters were not invited there to speak, but to listen and learn, she with a few other women withdrew and formed the Woman's State Temperance Society, with Elizabeth Cady Stanton, president, and Susan B. Anthony, secretary.

Later, Susan B. Anthony and Amelia Bloomer attended the New York State Temperance Society but were refused admission after a discussion described as a "perfect pandemonium." In May, 1853, the friends of temperance met in New York at the Brick Church to arrange for a world's temperance convention. Women delegates were present and upon vote were accepted, but on motion that Susan B. Anthony be added to the business committee, a discussion arose whether women had the right to take part in the reform. The debate was filled with vulgar vituperation and insult, and a committee was appointed to decide the question with the result that women were excluded from the convention. Thomas Wentworth Higginson then arose and invited all persons who wished to call a whole world's temperance convention, to meet elsewhere. The ten women delegates and a few liberal-minded men left the room, so there were two world's conventions held, one attended by men and women, and the other by the Brick Church following.

Antoinette Brown was sent as a delegate to the last named convention; the committee omitted her name from the list of delegates, but it was moved she be admitted. A discussion followed which took the greater part of two days, but by a vote Miss Brown was admitted by a small majority, then it was moved and carried by the same small majority to allow her ten minutes to address the convention. She came to the platform cheered by a "Take courage" from Wendell Phillips and a "God bless you" from Rev. Wm. Henry Channing, but the minority jeered and hissed and pointed the finger of scorn at her and cried "Shame on the woman."

Some one asked Miss Brown why she went to the convention. She replied: "I asked no favor as a woman, or in behalf of woman, no favor as a woman advocating temperance, no recognition of the cause of woman above the cause of humanity, the endorsement of no issue, and of no measure; but I claimed in the name of the world the rights of a delegate in a world's convention." So we might cite you to instance after instance where women have had to overcome difficulties which required great moral courage and fortitude to reach the present status of freedom, but it is a pleasure to note that where woman is given a chance she always demonstrates her ability.

In 1862, when General Spinner appointed seven women as clerks in the National Treasury, it brought forth a storm of disapproval; two women were appointed in the postal service at six hundred dollars a year each, to take the place of one twelve-hundred-dollar man, and assigned to the dead letter office where they opened and returned letters. A good day's work for the man had been one hundred and twenty-five letters per day, but the women handled two hundred and fifty letters each per day, so in place of two women doing the work of one man, one woman did two men's work at one-fourth the wages, thus the woman's ability to cope with men mentally and where proficiency was required was proven again and again.

A forward movement was noted along all lines, first one state then another made concessions that bettered the condition of woman, until today standing at the threshold of a new century we note our gains.

Married women control their own property throughout the United States except in seven states. She may make a will anywhere in the United States, Great Britain and her colonies, she controls her own wages except in Louisiana and Texas. Equal guardianship over children of mother and father holds in seven states; in all others the father only is guardian. This seems to me one of the most unjust laws in existence. That there is no love like the mother love has been emphasized for ages. Mothers stand by their offspring in sickness and in health, through evil and good report, they go without food and clothing that their children may be fed and comfortable, and yet, after working side by side with the father for years, making the home, rearing the family and laying aside for the proverbial rainy day, should she die the husband may break up the home, scatter the children, do as he sees fit with the property and no one says him nay. On the other hand the father dies, the law steps in and says to the widow, "You may have these household goods (perhaps many of them have been purchased by her own labor and sacrifices and perhaps given by her parents as her gift from home). You may have the use of one-third of this property you have helped to earn—and these children must have a guardian."

But on the other hand from scorn and jeers for the women who wanted to improve their minds we have progressed until today of four hundred and seventy-two colleges reported by the commissioner of education in 1896, three hundred and twenty-two are co-educational, and Paul's advice: "If they (women) will learn anything let them ask their husband's at home," has been changed to "If they will learn anything let them find out for themseves, in schools, colleges, daily papers, magazines and at the fountain head, for all are free."

From the thirty-five women and children employed in factories, in 1809, the census report of 1890 gives the number as three million, nine hundred and fourteen thousand, five hundred and seventy-one. From the cruel treatment received by Elizabeth Blackwell while studying medicine, public opinion is so modified that today it is estimated eight thousand graduated women physicians are practicing in the United States, seven hundred are reported as practicing in Russia, several hundred in the British empire ond the colonies. We find women preachers, lawyers, reporters and editors. Woman has a chance to make use of all of her God-given ability that she can, and has come to be a potent factor in the world's progress.

In the political field her outlook brightens; she has limited suffrage in twenty-five states, full suffrage in four states, limited suffrage in twelve of the countries and provinces of the old world, liberal suffrage in England, Ireland, Scotland, Wales and Canada, full suffrage in the Isle of Man, New Zealand, South Australia and West Australia,. and next June the question is to be submitted to the voters of Oregon, with bright prospects of adding another star to the equal suffrage flag. What has the future in store for woman?

We cry "Watchman, what of the night?" and from every quarter of the globe is heard the answer, "The morning cometh."

"THE DUTIES OF THE FARMER'S WIFE."

BY MRS. LAWRENCE COLVILLE, UTICA, OHIO.

[Read at the Farmers' Institute held at Utica, Licking county, December 8 and 9, 1905.]

It has become our privilege to discuss for a few moments the duties of the farmer's wife. In the first place, she owes it as a solemn duty to herself, to place her affections in the keeping of an honest, industrious, temperate, Christian man; a gentleman in the truest and fullest sense of the word.

The farmer's wife's duties are many, we will admit; and if she has attained the happy and honored position of motherhood, her duties and responsibilities become so multiplied that we tremble at the thought.

Now, the manual duties of the farmer's wife must not be confused with self-imposed tasks. By this we mean tasks assumed in order to gratify some desire of pleasure, ambition, or the accumulation of needless property. Remove these tasks, and those she ofttimes taxes herself with, to please her friends; also those that society will thrust upon her and the remainder is but a labor of love, and not one duty would we have removed.

Granted that she is blessed with that choicest of nature's gifts, good health, the branch of farming in which they are engaged has much to do with her duties. Or possibly, she takes on some extra industry herself, in order to increase their yearly income, such as poultry raising or some such industry the discussion of which would be another subject.

The farmer's wife has a right to do anything she can do well, and she ought to do what she can do better than a man could do it. She must be a helpmate to her husband in whatever they decide to undertake, and that scriptural injunction "Bear ye one another's burdens," applies just as aptly to the farmer and his wife as to anyone.

We would much rather talk about the privileges of the farmer's wife and her advantages as compared with those of her city sisters. It is true difficulties and unpleasant things sometimes arise; for instance, company arrives unannounced and possibly at the dinner hour, but thanks to a well stocked cellar, she does not have to wait till the grocer's man arrives to replenish her repast. Or, perhaps, on wash-day or baking-day, with scarcely more bread than just enough for the noon day meal, the husband brings in some business man or friend for dinner—a stranger to her it may be, but a happy meeting for him, nevertheless. Now, it is the wife's duty to make up with good grace what she lacks in the preparation of the meal, for as her husband's guest he deserves her kindest hospitality. And a cordial reception will be appreciated by them both far more than a sumptuous repast without it.

Another thing we would make most emphatic. It is the duty of every farmer's wife to so manage her work, that her health may last for future years, for her family will need her presence just the same in twenty years or more as now. Avoid the worrying over the daily routine; cut some of it out and save the precious time for something better; we do not mean for her to slight those things that mean comfort and happiness to her family either, but the more useless things in the daily treadmill. We repeat, she must not let the little finishing touches that the careful housewife so delights in, stand between her and enough leisure, to preserve her good health, which means so much to the comfort and happiness of her family. What if the towels, dish-cloths and all such articles are not ironed if the wife's temper is smooth? What if the stoves and tinware are unpolished if her face is bright and cheerful? What if her house cleaning is not done the week before her nearest neighbor's if all the family are in perfect health?

Another way for her to lighten her labors, is to let the children have an interest in the work, for we must keep them busy if we would keep them contented on the farm, but not make drudges of them. A pleasant occupation for children means happiness. Let them have something of their own to feed and to sell; they must learn how to do these things; why not now? Give the boys a primary work on agriculture; they can just as well know if they are feeding a balanced ration at ten years old as at forty. Let them start a bank account however small with money they made, for do you not know an American can never be convinced of the success of a business unless he sees money in it? We say again, let the boys and girls have an interest in those things that will lighten your labors and give them knowledge and experience that will be of more value to them than an inherited fortune without business ability.

The farmer's wife needs a good temper lest, when things go wrong in the house, she flash out all the ill-temper and nerves and irritability on her husband's defenseless head, that she has not dared vent on servants and strangers. It is also her duty to cultivate a cheerful disposition, because where can so many things occur to upset all plans for the day as on the farm? She needs the capability of looking on the bright side of life, and refusing to be worried by small things. She needs considerable tact and patience, the one to teach her when to remain silent and when to speak, and the other to put up with the good man when his temper is ruffled, as it needs must be at times, for he is the one that has to do battle with all the mishaps of the farm, and all the buffeting of the outside world, standing between her and all such unpleasantness.

She needs a sympathetic nature in order that, should sorrow or misfortune fall upon them, she may be able to give comfort to him. For it is the wife and mother to whom all look for help. She must be tender, to sympathize with the tiniest woe, strong enough to help bear the heaviest burden, light-hearted enough to share all innocent pleasures, stern enough to command respectful obedience.

It is also her duty to have a secure grasp of such subjects as are of interest to farmers and she should not be above studying even politics in order to understand, should this subject be mentioned in her presence. She should read and be sufficiently posted on the current events of the day, especially those of interest to the farmer, so that her conversational abilities will reach farther than the mere talk about how many pounds of butter she makes, and how many eggs she gets, and how many chickens she raises, and the talk of the neighborhood.

Possibly, some farmer's wife gets the idea that her life is full of hardships, but when she counts her trials over, she should do so some sultry day in summer when the farmer is toiling in the harvest field, or some wet or snowy day in winter when he lives in the storm, doing all his work and all her outdoor work in order to give her the more comfort and pleasure. And the pleasures! She must not get the idea that the pleasures are for her and the drudgery for him. That it is his place to make the money, hers to spend it. All such ideas are selfish in the extreme. But some wives remind us of the white man who went hunting with the Indian. They agreed to divide the game at the end of the hunt. So they took bird about, till they came to the two last, a crow and a turkey. "Now," said the white man, "you take the crow and I'll take the turkey. Or I'll take the turkey and you take the crow.' The Indian said, "Why don't you talk turkey to me?"

But you say, "Must the farmer's wife have no time for social privileges?" Most assuredly she must have, at suitable times and occasions. But not like the one who helped practice each night for a program to be given in a neighboring town and kept her bed through the day for needed rest and sleep and let her husband and hired hand do their own cooking. Duty comes before pleasure always; and it was Gœthe who said, "Do the duty that lies nearest thee." Home duties come first to every woman who takes upon herself the responsibility of making a home. Make the home pleasant and attractive. But do you know what makes home attractive? It is a beautiful presence there, though plain be the features.

Another important duty of the farmer's wife, is to help in the education and training of children. It was Beecher who said, "Education, is knowing how to use the whole of one's self." Educate our daughters by all means, both in music and the classics or along any line preferred, but no girl's education is complete without a thorough knowledge of all kinds of housework. She should know how to churn and make good butter; she should know how to wash and iron; she should know how to mend and sew, as well as to do fancy work; she should be thoroughly schooled in the art of cooking. And who can teach her all these things and many others not mentioned, better than a competent mother? One great man said he needed an educated wife to bake his bread and cook his meals, and every man needs as much. Shame on the farmer's wife who raises a daughter like the college professor's wife we knew, who was a talented musician, but, who cooked green string beans for her husband's breakfast, and then wondered why they were not good, for she cooked them for half an hour.

O, farmers' wives and mothers! Let us awaken to our duty and pray for wisdom. For as sure as our families are all on the old farm with us now, just as sure they are not always going to be. And it has been said, "The hand that rocks the cradle is the hand that rules the world." We have but to recall history to find that a great proportion of the great men and women of all ages came from farm homes. Let us be careful of the farmer's boys and girls, for on them in a great measure depends the future of this great country of ours.

Would that each boy and girl in this broad land could be brought up under the guidance of an educated, refined and Christian mother; and we would have them brought up in a farm home, where they can breathe God's free air, and drink in His blessed sunshine, amid singing birds and babbling brooks, free, in a measure from the snares, vices, temptations, allurements and influences of the city, because more isolated. Where they can grow a strong mind in a healthy body, living close to nature's teachings.

What man will ever forget the old homestead of his childhood? The happenings of this busy world may take him far away and many things, people and places be forgotten, but early influences will be remembered, and fancy will fondly revert to the old farm home.

Oh, we would that every farmer's wife would live true to the trust placed in her keeping, and soar above the trivial things of this life into a broader view of her duties, or we would say, the one grand duty that includes all others making her what she was intended to be, the home-maker, queen of the home.

"THE WOMAN'S PART."

BY MISS MAY FARAGHER, WARRENSVILLE, OHIO.

[Read at the Farmers' Institute held at Warrensville, Cuyahoga county, February 2 and 3, 1906.]

The woman's part in the world today is vastly different from what it was in the days of our grandmothers. Women, as men, with the passing of the years, have acquired new aspirations and desires, the principle cause being the invention of labor-saving machinery that gives more time for education. With the growth of knowledge their eyes have been opened to new possibilities. The fact that women fill almost any position in the business or educational world that men do, proves the justness of the changed conditions.

Every woman has the right to choose her life work, to think on all themes, to settle for herself the question of marriage, to share in the management and control of society, church and state where her interests are vitally involved. The real woman's mind is furnished with calm judgment, discretion, decision and imagination, and her soul with love, faith, hope and a clear consciousness of God. If a woman has faith, love and hope she will be sincere, truthful, sympathetic, joyous, serene and just. If she have any abiding consciousness of God she will have strength and wisdom to meet life's requirements, and will leave a priceless inheritance to men and women who come after her. It revolves itself into great simplicity, woman will be the wife, the mother, the friend, the adviser the hope of the world, if she is real. The joyous atmosphere in which a sweet, winsome woman moves is as much a restoration to the weary soul as food and sleep are to the exhausted body.

Health of mind and health of body are necessary for the real woman's life, and the health of each is dependent upon the other and a clear vision of the soul upon the health of both. An understanding and appreciation of this interdependence of soul, mind and body makes a firm foundation for the evolving of the highest human ideals.

It is one's duty to make the best of one's self.

Perhaps in no other occupation is the man's and woman's part in work so woven together as on the farm. There are no distinct spheres there, as when the man works in an office all day and the woman is in the house alone. On a farm the husband and wife have more opportunity for helping each other. The woman's work on a farm is more varied than the work of many other women. The work is difficult and important, the days are long, and the most of the houses were not built with modern conveniences.

Many qualifications are necessary for a successful farmer's wife. First, she must be intelligent. In no other business is a wife so completely a partner as on a farm, and as such she is entitled to a complete knowledge of all important business transactions, and the financial standing of the firm and a right to use a large share of its profits. The intelligent wife is a successful home-maker and her judgment is intuitive; second, she must have will power enough to keep her from becoming a drudge; third, she must be economical in time, strength and money; fourth, she should be progressive, she should strive to advance to a higher plane, not by bewailing her condition but by cultivating a spirit of contentment.

There was a time when people, some people anyway, rather looked down upon the farmer's wife and daughter. This time is past. Many of our farmers' wives and daughters are the very cream of womanhood. They are cultured and refined and have a gracious and dignified manner, while yet possessing that sweet womanliness that characterizes the true lady everywhere. Do not be ashamed of yourself because your work lies in a country kitchen. If the work is well done there is nothing degrading in it. If you have to do so-called menial labor, do it with a grace of spirit and a refinement of purpose that shall not only ennoble the work, but the one that does it.

The farm is the nursery of the nation, the wife the overseer of that nursery. Many of our greatest men of history have been sons of farmer's wives. "Work upon marble will perish, work upon brass will be affected by time, work upon temples will crumble to dust, but if we endue immortal minds with good principles with the just fear of God and love of their fellowman, we will engrave on the tablets something that will brighten for all eternity."

The ideal woman on the farm will care more for well prepared and healthful cookery than for an ornamental display in her rooms. She will have a-plenty of wholesome food served in a dainty and appetizing way. At its best home fosters in us the virtues of thrift, good management and a quiet acceptance of life's ups and downs; expressing in the paper on the walls, the clock in the corner, the carpet on the floor our tastes, our desire for harmony and our patience with limitation, it also surrounds us with a gentle dignity never so entirely ours if we are migratory and nomadic. As we strike deep roots into the earth whence we came, our characters grow strong and our power to impress others vitally is immensely augmented.

Woman's true sphere is the home. Physically, intellectually, morally and emotionally nature has qualified her for domestic duties. Housekeeping is the last thing a lady can afford to be ignorant of. All women should learn to be housekeepers whether they ever expect to keep house or not. Every young girl should learn the practical duties of the housekeeper by doing the work herself. System is the secret of labor-saving. We ought to have systematic habits. We can do nothing well without them. Some people call routine drudgery, but good routine is simply good living.

Some one asked, "Must we devote ourselves to household drudgery and scour pans, skim milk and make butter all our lives just because we are born women?" Housekeeping need not become drudgery. It is only so to those who are unfitted to fill the place. Yet the inexperienced do not hesitate to seek the place. The girl who has never spent three months in a kitchen has no more right to accept the management of a home than the girl who has never had any teaching in bookkeeping should accept a position in a large establishment calling for the knowledge of accounts. It is every girl's duty to become efficient in the most essential of all professions, and when she takes unto herself a home and is confronted by the obstacles common to the inexperienced she will realize this fact.

A careless housekeeper, working amidst dust and flies and scattered materials, flour, fruit, sewing scrap and what not, condemns many things a tidy housekeeper delights in. Cleanliness is far more a matter of economy than many women realize. The difference in methods of work are very marked in the different households, some make laborious work of the every-day tasks, others so systematize that it is comparatively easy. So it is with house cleaning, there is a neat and easy method, and a dirty, dusty, choking way that is a terror to all concerned. The secret of a clean house is not eternal warfare against accumulations of dirt, but against the causes that produce them, and it will be found easier and cheaper in the long run to keep out the dirt than to put it out continually. The woman's part is to keep clean and neat, and fortunate is she who trains her family to help to keep out the dirt.

The true aim of housekeeping is rendering the home more attractive and comfortable. It is nothing spasmodic, graphic or prodigious, done in a short time. It is a labor of love for the sake of the dear ones who share the home with us.

To minister to those one loves is pleasant and requires adaptation and skill in application to do it satisfactorily. It is not the work we do that counts, but the energy, or the enthusiasm, or the feeling with which we do that work.

If we expect ready hands and willing hearts in our kitchens, we should make them pleasant, for we literally bear the "burden and heat of the day" in this department of our homes where emphatically "woman's work is never done." We should no longer be satisfied to locate our kitchens in the most undesirable corner of the house. We should demand ample light that the room will be cheerful. "Well planned is half done and well done is twice done," is as true today as it was at the unknown date of the long ago when some thrifty housekeeper hurled it tauntingly at her shiftless or less mentally capable sister. Routine work in the kitchen needs the brightening influence of outside life.

In financial matters the woman must have wisdom, tact and intelligence. Given the same opportunities as men, women succeed fully as well in business ventures. The woman who works day in and day out receiving no money return is representative of a large class. Women who earn a large part of the income of a family should receive a recompense. "It took me five years," said a married man, "to become convinced that the cheapest way for me to run my house was to give my wife so much money every month, to spend as she saw fit. I think I have saved at least 25% by this plan. I never have any large bills coming in now at inopportune times, for my wife pays as she buys. My house is better equipped and better managed than it was under my old system, and furthermore, my wife has a private bank account to which she adds a little every month. I would advise every man who has a practical wife to try the same plan. It is an immense relief, not to speak of the saving." If a woman is willing to give up her whole life for him the least a husband can do is to make her an equal partner in his financial matters and treat her as such.

The farmer's wife should read more than she does, magazines, weeklies and monthlies. She should be educated by observation, reading, thought and discussion. There is no healthy thought without labor, and thought makes the laborer happy.

Sometimes in rightly putting the stress that we do upon intelligence we forget the fact that there is something that counts more. It is a good thing to be clever, to be able and smart, but it is a better thing to have the qualities that find expression in the Decalogue and the Golden Rule. It is a good and necessary thing to be intelligent, it is a better thing to be upright and decent and fearless. The woman's club or meeting of a social nature are of much value to entertain, to instruct in domestic, moral, social and educational matters. Woman's sphere is the home, but a woman's club need not antagonize the home. One gets new ideas and inspirations. The circulating libraries, reading and lecture courses and free delivery of mail give opportunity for culture such as our grandmothers never dreamed of.

The Woman's Christian Temperance Union and other women's organizations are powers for good throughout our land. Child study should have an important place in every young woman's education as a preparation for her life as a woman whether she be a mother in the specific sense or not. Such study will enable her better to understand herself, will help her to adjust her relations to others, will give her a wider horizon, deeper sympathies, more gentleness and toleration, in short, will be a potent factor in developing the real woman, which is the mother.

The woman's part as mother is the most sacred of all, and her influence is usually conceded to be the most powerful. "The hand that rocks the cradle rules the world" they say and truly. The mother should be especially careful in example and precept.

There is no occupation to compare with that of moulding the life of a child. To train a man is far more important than to train a flower, or chisel a statue, or write a poem. Mothers will find the task of teaching children correct speech very pleasant and will have the gratification of knowing the knowledge will be of inestimable value to them as they grow older, being, as it really is, the broadest foundation for a good education.

Everyone feels in his or her life the real need of a sympathetic friend, one into whose ear can be told all the dreams and aspirations of the soul. Such a friend every mother should be to her daughter, every father to his son. But we do not always do what we should, and parents, unfortunately, are too often the last to become the intimate friends and companions of their children. Young people will somehow find such companionship and they will owe much of their future to the one whom they have chosen as their comrade.

It is an admirable thing to have a sound body. It is an even better thing to have a sound mind. But infinitely better than either is it to have that for the lack of which neither sound mind or sound body can atone, character. Character is in the long run the decisive factor in the life of individuals and nations alike.

The woman on the farm should be capable of meeting emergencies. She should at least know what to do until a doctor comes in case of a sudden illness, a bad wound, a broken bone, a spasm or croup.

Home is the father's kingdom, the children's paradise and the mother's world. A pleasant home well lighted, full of good literature, games and music will be a safe retreat for the boys and girls. The mother should enter heartily into the evening's amusements, she must be a good comrade as well as a good mother.

The farmer's wife needs exercise out of doors. Some get too much, more get too little, especially in the winter time. The farmer and his wife should belong to some organization outside of the church. Acquaintance with others helps them to outgrow criticism and prejudice. Neighborhood sociability should be promoted by old-fashioned hospitality. Simplicity in entertaining is desirable. To hear new voices, see new faces act as tonics to the mind. To work well we must occasionally play well. To keep the spirits and mind in healthful condition, diversion is necessary to everyone.

Enthusiasm in life is the great generator of sunshine. Without a living interest in the busy world and that sympathy of feeling which connects us with other living beings, we cannot infuse any warmth into our manners or bring others into sympathy with us. The woman's part is to be patient, forbearing, economical, gentle, cheerful and loving whatever place she holds.

"A simple love and simple trust and a simple duty done are truer torches to light to death than a whole world's victories won."

We should not underrate the farm life. Do not compare its dark side with the bright side of some professional life, for farm life has its bright side too, and it is the woman's part to help to make it bright.

"No one rises from a low plane to the higher one of heroism and enthusiasm without the aid of a higher mind than his own."

FOURTH ANNUAL REPORT OF THE CHIEF INSPECTOR OF NURSERIES AND ORCHARDS.

OHIO DEPARTMENT OF AGRICULTURE,
DIVISION OF NURSERY AND ORCHARD INSPECTION.
Columbus, Ohio, December 30, 1905.

Hon. W. W. Miller, Secretary of the Ohio State Board of Agriculture:

SIR:—I herewith transmit my Fourth Annual Report, as Chief Inspector of Nurseries and Orchards, for the year 1905.

Over one hundred more applications for nursery inspection were received this summer than during the previous year.

The high prices paid for small fruits during the past few years has caused a large demand for plants, hence many fruit growers have had their stock inspected in order to sell plants, and this is one of the causes for the great increase in the number of applications for inspection.

Orchards have been inspected as in the past, many investigations have been made of dangerous insect pests throughout the state, and many remedies have been tested.

NURSERY INSPECTION.

The inspection of nurseries occupied the exclusive attention of the inspectors from July 15th until early in October, and much of the time since then has been spent in examining packing grounds of dealers, superintending fumigation and re-inspecting stock on nursery premises. Six applications for nursery inspection were received from January 1 to June 1, 1905, and eleven certificates were issued, five of these having been held over from the inspection made the previous fall.

Applications received from June 1st to December 30, 1905	517
Certificates of inspection issued	481
Certificates of inspection refused or held for various reasons	31

The stock covered by five applications for inspection, recently received, has not yet been examined, as no sales will be made until spring.

A total of 518 nurseries and 65 greenhouses were inspected during the year. Two thousand two hundred and seventeen acres of orchards on nursery premises were also examined.

The following numbers of orchard trees and shrubs on nursery premises have been destroyed by the owners during the year, in accordance with the directions of this Division:

Trees destroyed for San Jose scale	2,458
Currants destroyed for San Jose scale	442
Sprouts destroyed for San Jose scale	515
Trees destroyed for peach yellows	1,203
Trees destroyed for black knot	86
Sprouts destroyed for black knot	21
Total	4,725
Trees treated for black knot	238

Nursery stock has been condemned and destroyed by the owners as follows:

Trees infested with San Jose scale	30,851
Trees infested with Putnam scale	20
Trees infested with scurfy scale	845
Trees infested with oyster-shell scale	1,117
Trees infested with willow scale	70
Trees infested with woolly aphis	15
Shrubs infested with San Jose scale	285
Shrubs infested with oyster-shell scale	45
Trees infected by crown gall	513
Total	33,761

In some cases a serious loss of trees has resulted to nurseries, in or near infested cities or towns, as it is a very difficult matter to control the scale in such localities. In a few cases, carelessness on the part of the nurserymen has resulted in infested trees being found on the premises. A repeated warning is given that all buds, scions, cuttings or grafts should be thoroughly fumigated before they are set in the nursery. Neglect to do this has caused serious loss in the past, and has been one of the means of causing nursery infestation.

FUMIGATION.

During the year 1905, trees, shrubs, plants and vines have been fumigated with hydro-cyanic acid gas, in accordance with the directions of this Division, as follows:

Trees (fruit and ornamental)	1,050,528
Shrubs (ornamental)	236,357
Currants and gooseberries	246,680
Plants (raspberries, blackberries, etc.)	648,750
Vines (grapes, etc.)	307,985
Total	2,490,300

Ten applications for certificates of fumigation have been received, and eight certificates of fumigation were granted during the fall packing season, and in all these cases the stock has been fumigated by an assistant inspector, as is required by law. This method of treating stock is coming more and more into favor.

In Bulletin No. 6 of this Division, recently issued, the subject of fumigation is thoroughly discussed, and the tests made show that stock fumigated with the normal strength of gas does not suffer injury, as is supposed to be the case by many persons.

Several states require that an official certificate of fumigation be placed on all shipments which are received from other states. As the present law provides for issuing such certificates, fruit growers should take advantage of it and demand that stock bought by them be covered by such a certificate. It should be stated that it is a common practice for nurserymen to attach personal statements to shipments made by them that they have been properly fumigated. The value of such statements depends entirely on how the treatment is applied, and if this work is carelessly done it offers no protection to the fruit grower.

Three shipments, containing 20,320 trees and stocks, have been held during the year by railroad companies because they were not accompanied with certificates of inspection. These were examined and found free from dangerous pests and allowed to pass to their destination. One shipment has been received which contained trees infested with San Jose scale, and four which were sent out have been reported as containing a few slightly infested trees.

NURSERY AGENTS AND DEALERS.

During the year the packing grounds of seventeen dealers have been inspected. Most dealers in this state do not heel in the stock which they buy for any great length of time on their packing grounds, as they use it at once to fill orders. A few cases have been found where stock has been heeled in near infested orchards or trees, and it has been ordered removed.

A list of agents and dealers who have filed sworn statements, as required by law, for the fall of 1905 and spring of 1906 delivery seasons, will be found in this report. Two hundred and thirty-one agents and 14 dealers filed such statements between January 1 and June 1, 1905, which covered the spring deliveries for the year.

ORCHARD INSPECTION.

During the year 91 petitions for orchard inspection have been received from thirty-six counties of the state, viz.: Adams, Allen, Ashtabula, Clermont, Clinton, Columbiana, Cuyahoga, Defiance, Erie, Fairfield, Fayette, Franklin, Geauga, Greene, Hamilton, Hancock, Huron, Jackson, Lake, Lawrence, Licking, Lucas, Mahoning, Medina, Montgomery, Muskingum, Ottawa, Ross, Sandusky, Stark, Summit, Tuscarawas, Washington, Wayne, Williams and Wood.

One hundred and sixty-five orchards and premises have been inspected, as follows:

Trees inspected	183,600
Shrubs inspected	8,346
Currants and gooseberries inspected	4,413
Vines inspected	200
Total	196,559

Thirty-five thousand five hundred feet of osage orange hedge has also been inspected.

An investigation has been made of the condition of 180 orchards or premises which were either infested with San Jose scale or other injurious insects, and directions were given the owners concerning the proper treatment to apply.

Many of the premises inspected were found free from the San Jose scale, while some of the orchards were only slightly infested. The inspection in these cases was of assistance to the owners in enabling them to apply treatment before the insects increased enough to cause serious injury. The greatest value of orchard inspection, at present, is to determine for owners the condition of the trees as regards infestation so that remedies can be promptly applied if necessary. Most fruit growers who have infested orchards know that this is the case and will apply treatment if they value their trees.

Trees and shrubs have been treated or destroyed during the year in accordance with the directions of this Division, as follows:

	Destroyed.	Treated.	
For San Jose scale	1,337	141,421	Trees.
For San Jose scale	.....	9	Shrubs.
For San Jose scale	.....	620	Currants and Gooseberries.
For San Jose scale	250	157	Sprouts.
For Peach Yellows	955	....	Trees.
For Black Knot	85	68	Trees.
Total	2,627	142,275	

Six thousand seven hundred and fifty-five feet of osage orange hedge have been treated for San Jose scale.

The treatment of orchards infested with San Jose scale was more general and thorough in the spring of 1905 than ever before. The lime and sulphur wash was generally used and gave satisfactory results.

In order to ascertain as near as possible the expense that the San Jose scale has caused the fruit growers of the state, some date were obtained from the peach growing section in Ottawa county. In Danbury, Portage, Catawba Island, Erie and Carroll townships, at least thirty plants have been built for preparing the lime and sulphur wash for spraying purposes. In some sections of this territory the orchards are not known to be infested with San Jose scale and no spraying is done.

Some of these plants are of small capacity and are cheaply constructed, while many of the larger ones are equipped with boilers and large vats, in which the wash is cooked by steam and cost as high as one thousand dollars each. From the latter the spray material is sold to fruit growers at from two to two and one-half cents per gallon, which is a very reasonable price.

In this section of the state sulphur is bought in car load lots and retails to growers at from two and one-half to three cents per pound. Lime can be obtained at the kilns at about sixteen cents per bushel. Letters were sent to the owners or managers of the cooking plants in the above mentioned townships, asking for a statement of the amount of sulphur used for making the wash during the spring of 1905. Twenty replies were received. The actual amount used by those reporting was a little more than seventy-two tons. The cost of this amount of sulphur and an equal quantity of lime for making the wash would be about $4,000.00, and probably the total amount of sulphur used would be at least one-fourth more, as ten of the thirty plants did not furnish a statement.

This means that the farmers and fruit growers in these five townships spent at least $5,000.00 for raw materials, with which to treat trees infested with San Jose scale, during the spring of 1905. It should be noted that no estimate is made of the cost of cooking plants, additional spraying outfits, or of the preparation and application of the wash, but these items would exceed this amount many times.

A similar treatment must be applied, annually, hence it is an easy matter to see that the expense of growing fruit in this section has been greatly increased. In other parts of the state where orchards are infested the expense of treatment is slightly higher, as the work is done on a smaller scale and the cost of materials is greater.

It is impossible to give an accurate estimate of the cost of treating this insect in the state the past year, but, from the data presented, it is evident that many thousand dollars were expended. An investigation of the condition of the infested localities in the state is now being conducted. In several orchards the insect has been stamped out, as far as a careful examination could determine.

A few growers have failed to secure good results with the lime and sulphur wash, but investigation has shown that this was due to its being improperly prepared. In spite of the additional cost of spraying orchards infested with this insect, the outlook for fruit growing is more favorable, and as a rule treatment work is accomplishing better results than ever before.

The most difficult feature of the work is in the cities and towns. The great majority of the residents take little interest in the matter, and it is almost an impossibility for them to secure competent parties to treat their trees even if they desire to have the work done. As a result many fruit trees have died, and in some of the cities that were badly infested a few years ago, nearly all the trees and shrubs that remain are of varieties that are not seriously injured by this insect.

Before many years some action will have to be taken for the protection of shade trees in cities, as at the present time many are dying from insect injury or improper care.

INVESTIGATION OF INSECT PESTS AND PLANT DISEASES.

During the past year investigations have been made of outbreaks of insects or diseases that were causing serious injury throughout the state. Some trouble resulted from the work of old and well known pests, while in other cases the pests had never been reported as being present or injurious in Ohio.

APPLE PESTS.

The canker worm is present in many localities in the state and often causes great injury, especially to apple trees. It can be controlled by faithfully applying known remedies. Orchards that are systematically sprayed every year are seldom injured by this insect, hence it would seem simply necessary to call the attention of fruit growers to the best methods of control and to endeavor to interest them in fighting the pest.

Thorough spraying with arsenate of lead or disparene at the rate of 3 lbs. to fifty gallons of water as soon as the blossoms fall, and again within two weeks, will usually be found satisfactory and will also destroy many larvae of the codling moth.

If the orchard was badly infested the previous year, the trunks of the trees should be banded on or before March 1st with tar, printer's ink, bodlime or some other adhesive substance to prevent the females from ascending the trees to deposit their eggs. In order to be effective the bands must be kept in a sticky condition until about May 1st. Thorough banding and spraying for one or, at most, two seasons, will reduce the number of insects so that they will cause very little injury.

The plum curculio. Serious injury is often caused to plum orchards by this insect, not only on account of the fruit that is mined by the larvae, but because the punctures made by the females when depositing their eggs furnish favorable conditions for the lodgment and germination of the spores of plum rot.

Early in June this insect was reported by Mr. G. A. Runner, one ot the assistant inspectors, as causing serious injury to apple orchards in Washington county. The trees were of the Ben Davis, Rome Beauty and Grimes' Golden varieties, and the fruit was so badly punctured in many cases that it was worthless. Lots of twenty apples were collected from thirty trees in these orchards and examined. Seventy per cent. of the fruit had been marked by curculios, three punctures being the average number on each apple.

A count of all the apples on one Ben Davis tree showed that eighty-five per cent. of the fruit was marked, the average number of punctures in each apple being five. One spraying with Paris green had been applied to this tree during May, but it had evidently not reduced the injury very much.

Samples were examined in two orchards in Lawrence county which had been sprayed regularly for several years, arsenate of lead having been used recently. The result showed that nine per cent. in one and sixteen per cent. of the apples examined in the other orchard were punctured, the average in each case being one puncture to each fruit.

Evidently the injury had been controlled by regular spraying for the codling moth, and this emphasizes the fact that many fruit growers, by treating their trees for this insect, succeeded in holding some in check that might otherwise cause serious loss.

The codling moth caused great damage to the apple crop this year. Although the early prospects were for a small crop throughout the state, the work of this insect, coupled with the destruction caused by the apple scab, was responsible for a large decrease in yield. Many orchards that would have produced a small, though profitable crop, owing to the high prices this season, did not yield any fruit because of failure to spray them.

In southeastern Ohio apple trees were observed in July where the fruit, although abundant, was almost covered with the scab fungus. The leaves were also infected to such an extent that most of the foliage dropped before the summer was over. Rome Beauty and Ben Davis were most severely attacked. These same varieties, grown in the same localities in carefully sprayed orchards, produced profitable yields of fruit.

In several places young apple trees were being injured by the bagworm, but this was simply another case of the results of failure to spray the trees.

GRAPE PESTS.

The grape root worm has been conspicuous by its absence this year. Very little injury was observed and no complaints were made concerning it.

The grape berry moth. Severe injury was caused by this insect in vineyards near Euclid, and reports have been received of great losses to the crop on Kelley's Island. The greatest injury resulted to Catawbas and other varieties which ripen late in the season. Concords and Niagaras were also severely attacked. This pest appears to be on the increase and unless it is checked by treatment, or by its natural enemies, of which it has several, greater injury is likely to result in the future.

OTHER FRUIT PESTS.

A pest which appears to be of a very serious nature, as no remedy is known, is a new species of root rot, which was reported by Mr. E. C. Cotton, one of the assistant inspectors, as killing apple and cherry trees in one of the nurseries. His report is given in full:

"A considerable number of two-year-old apple, and three-year-old sour cherry trees in the nursery were affected by a disease which caused the roots to rot while the tree was still alive and healthy in all other respects. The first symptoms appeared to be a drying up of the leaves, beginning with the outer edge and extending in toward the center until the whole leaf was brown. In some cases the leaves turned yellow before drying up, but always remained for some time after the trees were dead. When dead trees were pulled up nearly all of the roots broke off within six or eight inches of their junction with the crown or main stems, and were so rotten that they broke square off at almost any point. In all cases observed the roots were covered with a white, felt-like mycelium, which not only surounded them, but also extended out for a distance of three-fourths of an inch in some instances, in a papery layer. One cherry tree that was apparently healthy, but which was standing next to a dead one, was pulled and all of the lower roots were found to be decayed and were coated with the usual white felted mycelium, while those near the surface were still perfectly healthy and sound.

"This disease appeared to be in spots. Several trees in a row were affected with the pest, while all of those about them appeared sound. The soil in which these trees were growing is rolling and has excellent natural drainage. The higher parts are gravelly, and the remainder is a gravelly loam shading off into a clay loam, but it is all underlaid with gravel. The greater part of the affected trees were found on the clay loam at about half way between the high and low portions of the field, and at points where there is the best of surface drainage. One spot of affected trees was found on the higher portion and in coarse gravel.

"This land was cleared about six years ago and the stumps blasted out. Four crops of corn and one crop of watermelons were raised previous to the planting of this block of stock, which was the first nursery stock to be grown upon it."

Samples of roots sent to Dr. B. T. Galloway, chief of the Bureau of Plant Industry, Washington, D. C., were examined by Mr. W. M. Scott, who states that they are affected with a species of root rot, closely related to *Armillaria melleus*. These diseases usually attack trees that have been injured in some other way, but they have been known to attack healthy trees. A similar fungus is present in the southern states and has been quite destructive to peach orchards in Georgia.

INSECTS AFFECTING SHADE TREES.

The elm leaf beetle has not increased to an alarming extent during the year. Examinations have been made of many elm trees in different sections of the state, but it has been found only in Dayton, where it was reported last year. A general inspection of the city was made about the middle of June and July and early in October. On the first examination it was found that many trees were being defoliated and all the localities were as badly infested as they were the previous year. On July 11th a large number of pupae and egg clusters were found and it seemed evident that the second brood of larvae would cause very serious injury.

On August 3d only a small number of larvae could be found and many of the egg clusters had failed to hatch. A large number of molted skins of larvae were found on trees in all sections of the city and it was evident that the insects had died immediatetly after molting. The weather during the last half of July was very dry and many of the trees were completely covered with fine dust. The only explanation I have been able to offer for the general mortality of the larvae is that the dust acted as a contact insecticide, and by covering their bodies effectually smothered the pests. It is a well known fact that fowls are able to keep themselves free from certain insect parasites by taking frequent dust baths, and it is probable that in this case the dust served the same purpose in protecting the trees. Some spraying was done during the summer and it was very effective.

THE CATALPA SPHINX.

The Catalpa Sphinx *(Ceratomia catalpae)*, an insect which has not previously been reported in Ohio, was sent in from the southern part of the state this summer by Mr. G. A. Runner, one of the assistant inspectors. A few large trees near Proctorville were almost stripped of foliage, and trees near Huntington on the West Virginia side of the river, were seriously injured. On July 29th, a new crop of leaves had been developed and newly hatched larvae of the second brood were feeding upon them. Many pupae were found about four inches below the surface of the soil beneath the trees.

An investigation of the condition of catalpa trees in the city of Jackson, where they have been planted extensively along the streets, showed that this insect was present in large numbers and had been numerous for several years. Many owners were disatisfied with the trees on this account and some were cutting them. Quite extensive parasitism had appeared in Jackson, the species responsible for it being *Apanteles catalpae,* but large numbers of hyper parasites, *Hypopteromalus tabacum* and a few specimens of *Horismenus microgastri,* were bred from larvae. The record of the parasites reared from infested larvae shows that they were outnumbered four to one by the hyper parasites, hence it was apparent that only a moderate amount of good was done in holding the sphinx larvae in check.

Later in the season Mr. Runner observed the same species in Athens, Vinton, Meigs and Gallia counties, all of these being located in the southeastern section of the state. He also found a small block of catalpa nursery stock which had been killed owing to repeated defoliation by this insect.

The Locust Hispa *(Odontata dorsalis)* has been notably abundant in the Ohio river counties during the summer. Hundreds of locust groves were practically defoliated, and the infested area was much larger than during the preceding year. The recent interest which is being taken in planting locust groves as a means of supplying posts, poles and small timber is increasing, and this insect, unless checked in the future by some natural enemies, may be the means of causing great injury to young plantations of these trees.

As a complete account of the insects affecting the Black Locust and Hardy Catalpa has been prepared by Mr. E. C. Cotton, one of the assistant inspectors, and is now being printed as Bulletin No 7, of this Division, no further notes will be given on these pests.

TEST OF REMEDIES.

During the past year many tests have been made of different insecticides, and some of the results are given briefly as they will doubtless be of interest to fruit growers. A considerable number of tests have not been completed, or further work needs to be done before a report is made.

SPRAYING FOR THE CONTROL OF THE SCURFY SCALE.

A few six-year-old apple trees infested with the scurfy scale were sprayed April 7, 1904, with the lime and sulphur wash: formula 15 lbs. lime, 15 lbs. sulphur, boiled for one hour and diluted with water, to make forty-five gallons of wash.

Several examinations made during the summer showed that very few scales had developed, and an inspection of the trees in the fall of 1905 showed that they were practically free from this insect. About five hundred apple trees in the nursery, slightly infested with this insect, were sprayed April 9, 1904. The same formula as above was used, also two unboiled washes made by adding caustic soda. About an hour after the spraying was finished a heavy rain fell, and this may have influenced the results, as they were not satisfactory. A slighter infestation was found on the treated trees than on those in two untreated check rows.

Currant bushes infested with the scurfy scale, on the same premises, were sprayed with the same mixtures. The boiled wash gave excellent results, and bushes treated with one of the unboiled washes showed very few live scales. The latter wash was made by dissolving 7½ lbs. of caustic soda in hot water, adding 15 lbs. of sulphur in the form of a paste, and diluting with water to make forty-five gallons. A bearing pear tree on the same premises which was treated with the boiled wash was practically cleared of scurfy scale.

SPRAYING FOR THE CONTROL OF THE ROSE SCALE.

A rose bush badly infested with this insect was sprayed with the boiled wash April 9, 1904. A final examination was made in November and scarcely any scale insects could be found.

SPRAYING FOR THE CONTROL OF THE PUTNAM AND FORBES SCALE.

A small orchard of apple, plum and cherry trees, many of which were badly infested, were sprayed April 7, 1904, with the boiled wash and with a sulphur, caustic soda wash made as follows: 2½ lbs. of caustic soda were dissolved in hot water; 2 lbs. of sulphur were added and after the reaction had taken place it was diluted with water to make ten gallons of spray. Although the buds were swollen and nearly ready to open, no injury resulted. The boiled wash killed nearly all the scales, although the effect of the spraying was gradual; fewer live insects being present in July than in May. The unboiled solution was not quite as effective, but did very good work.

SPRAYING FOR THE CONTROL OF THE OYSTER SHELL SCALE.

Poplar trees, badly infested with this insect on the trunks and larger branches, were sprayed May 4, 1905, by Mr. Steffens, one of the assistant inspectors. The lime and sulphur wash was used. It was boiled with steam for one hour and the trees were thoroughly treated. On December 4th Mr. Steffens examined the trees and reported that very few scales were present. Upon untreated poplar trees near by, that were slightly infested when the spraying was done, the scales had developed during the season so that they were quite badly infested. In this experiment the spraying was very successful, but from the experiences of many owners who have treated their trees, it is evident that good results cannot be obtained unless the work is very thoroughly done.

SPRAYING FOR THE CONTROL OF LECANEUMS.

Two silver maples badly infested with *Lecaneum sp.* were sprayed November 26, 1904, with the boiled lime and sulphur wash by Mr. Steffens. The trees were well covered except the tips of some of the branches, but the work was very difficult on account of a strong wind. Samples examined April 11, 1905, showed that practically all the scales on untreated twigs were alive, while on those that were treated about fifty per cent. were dead. In the latter case many of the scales had become loosened on the twigs and dropped to the ground. Many of the branches and some of the living scales were at this time well covered with the wash.

An examination made December 24, 1905, showed that the trees were as badly if not worse infested than at the time the treatment was applied, and from this case it would appear that fall spraying with the lime and sulphur wash is not a success for controlling scale insects of this family.

THE EFFECT OF K-L ON THE SAN JOSE SCALE.

Fifty Lombard plum and fifteen pear trees, generally too badly infested with San Jose scale, were sprayed April 18-19, 1905, with twenty and twenty-five per cent. of oil in a K-L mixture. It was made by adding ten gallons of kerosene to fifty pounds of limeoid. It was necessary, however, to add a small amount more of the latter material in order to absorb all of the oil. After thoroughly mixing, water was added and the whole was vigorously agitated with a hoe. It gradually mixed with the water and was then placed in the tank, enough water being added to make the required percentages of oil.

The trees were thoroughly sprayed, and as the sun was bright most of the time, evaporation was very rapid. The wash worked well in the nozzles, but there was a tendency for it to separate, especially when the liquid became low in the tank.

On July 15th many of the plum trees showed traces of the wash, but a considerable number of young scales were found on the twigs and fruit. The pear trees were in better condition, although some live scales were observed. An examination made August 16th by Mr. Hyde, one of the assistant inspectors, showed that scales were present on the fruit on nearly every plum tree, and in some cases the infestation was bad. It was evident that the spraying had killed a considerable number of scales, as fruit on untreated plum trees was so badly infested as to be unsaleable. The pear trees were in better condition on this date.

The final examination made November 13, 1905, showed that the plum trees were very much worse infested than when the treatment was applied. No particular advantage was noted of the twenty-five per cent. over the twenty per cent. K-L. Prominent mention should be made of the fact that untreated plum trees, which were quite badly infested, were growing in the same block with those that were sprayed, and undoubtedly the results on plum with the K-L mixtures would have been more satisfactory if this had not been the case.

The pear trees which were treated with the twenty per cent. K-L were not located near untreated trees that were badly infested, but their condition at the time of the final examination showed slightly greater infestation than on the date treatment was made.

The K-L mixtures are more expensive to prepare than the lime and sulphur wash and this is particularly true if they are made on a small scale. Considerable difficulty was experienced in preparing the wash with hard water, and in some sections of the country this is a distinct disadvantage, as soft water is not available to use for this purpose. A tendency was shown for the oil to separate from the limeoid to a slight extent, and one medium sized apple tree was killed by spraying it with the material left in the bottom of the tank. Our experience this year would not warrant making a recommendation for its use by fruit growers for controlling the San Jose scale.

CON-SOL.

Three plum and two pear trees were treated with this material April 19, 1905. It was diluted one gallon to forty gallons of water, as advised by the manufacturers. Seven pear trees were also treated with it, used at the rate of three gallons to forty gallons of water. The trees were all infested and some of them were incrusted with the San Jose scale. Both treatments were unsatisfactory, but the latter strength did better work than the former.

SPRAYING WITH STANDARD DISINFECTANT.

Trees infested with San Jose scale were treated in April, by the owner, with standard disinfectant, used at the rate of one part to ten parts of water. This substance is manufactured by the Standard Disinfectant Company, of Cleveland, Ohio, and, according to their statement, is a preparation of creosote, crude carbolic acid, petroleum oil, rosin and soda. An examination of the trees in September showed that where the spraying was thoroughly done, the trees were killed. A light application killed very few scales.

THE DERROR TREE FLUID WASH.

This material is mentioned, not because it has been tested during the past year, or because it is of any value as an insecticide or fungicide. It is prepared at Mansfield, Ohio, and has been sold extensively in some sections of the state, and I am informed is being boomed by agents in other states. The owners claim it to be a panacea for all the ills that befall tree life, and many confiding people have already exchanged their money for this practically worthless wash.

TREATMENT FOR CODLING MOTH.

Numerous experiments have been made during the past three years with Paris green and arsenate of lead for spraying against this insect, with varying degrees of success. During the year 1904 the crop was very nearly a total failure in the orchards where our tests were made, and this year a total failure resulted in one of the three orchards where spraying was done. Observations throughout the state show that this insect is being controlled by the larger apple growers who spray systematically every year; but for the small grower, who desires to treat his trees only when the prospect is good for a full crop, it is a difficult matter to control the insect unless a large number of careful sprayings is made.

Climatic conditions are often such as to make thorough work nearly impossible, hence it is to be expected that the same results will not hold each year. Our experience shows that arsenate of lead is a more satisfactory poison than Paris green to use for this pest, and we have used the manufactured product in the tests made. The expense is somewhat greater, but the results fully justify it. In obtaining pure spray material the horticulturist must, to a large extent, depend on the manufacturer.

Unfortunately for the popularity of this poison, a shipment was made this year to one of the leading horticulturists of Ohio by F. Lavenburg, of New York City, which, on being applied early in August at the rate of 2½ lbs. to fifty gallons of water, burned the foliage so badly and injured the fruit to such an extent that the crop was destroyed, thus causing severe loss on account of the high prices paid for apples this year. An analysis of this material showed that it contained a small per cent. of free arsenic, but the manufacturer denied any responsibility for this or the fact that the crop was lost thereby.

Some of the trees in one of our experimental blocks were treated in August with this material, although it was supposed to be disparene at the time spraying was done. Serious burning resulted to the foliage, and during August nearly one-half of the leaves dropped from the trees. The fruit, which was of the black Ben Davis variety, was not injured and was picked in good condition.

We have repeatedly advised fruit growers to buy arsenate of lead that is ready prepared, because the raw arsenate of soda used in making it, which is sold on the market, is often adulterated and little money is saved by using the home made material, provided it is applied at the same strength as that recommended for the prepared product. It is to be hoped that manufacturers will see that their future sales depend largely on their honesty and the care with which their goods are made, and that they will use every precaution to keep them of high quality, as this is sure to cause an increase in the demand.

The complete data of the codling moth experiments have not been compiled, hence results cannot be given at this time.

GRAPE PESTS.

During the present season the Grape Berry Moth has caused serious damage in some of the vineyard sections, and a series of spraying experiments was tried at Euclid to destroy this pest. Disparene was used at the rate of 1 to 5 lbs. to fifty gallons of water, with and without bordeaux mixture.

Grape rot is not prevalent in this or the adjoining vineyards, so no difference was noted on the rows where bordeaux was added. A block of eight acres, consisting chiefly of Concords and a few Catawbas, was used for the test. It had been so badly infested the previous year that scarcely any saleable fruit had been harvested.

Continued rains, the wet condition of the soil and high winds prevented the second spraying from being applied as early in June as was planned. Sprayings were made May 24th, before the buds opened; June 26th and 27th, five days after the blossoms had fallen, and July 22d.

The sprayings were applied by experienced men employed by Mr. Clymonts, the owner of this and many other vineyards in the vicinty. I was present when the first spraying was put on, and the last two were superintended by Mr. Steffens. The success of the last spraying was seriously interfered with by the density of the foliage on the vines, which rendered it almost impossible to cover the clusters thoroughly. At the time of the picking, the best results were obtained from vines having thin foliage.

Considerable injury resulted this year, especially to the Catawbas, but the Concords showed great improvement. The treated block is almost entirely surrounded by vineyards, which were sprayed by the owner, and in a portion of them the infested berries were hand-picked in August. From thirty-four acres twenty-three whiskey barrels of infested berries were gathered and destroyed. From the experience this year, it appears that spraying for this insect, after July 1st, is not of sufficient value to warrant its recommendation, chiefly because of the abundance of the foliage that is present on the vines.

Early June treatment appears to be the most effective, while the larvae of the first brood are feeding in the small blossom and berry clusters. In order to be of value the spraying must be very thoroughly done. If necessary, this treatment should be supplemented by hand-picking of infested berries in August.

A Concord vineyard of four acres, located near Euclid, and owned by Mr. S. E. Stray, was sprayed with 3 lbs. of disparene to fifty gallons of water on June 17th and on July 20th, and on the 29th with Paris green. He reports the crop was superior to the one produced the preceding year, having an increased yield of six hundred eight-pound baskets, an average increase of one hundred and fifty baskets per acre.

PUBLICATION.

The office work has increased rapidly during the past year, the regular correspondence amounting to over 2,200 letters. This number does not include over 1,500 circular letters sent to the daily and agricultural papers, and to parties owning infested premises.

Several circulars relative to treatment have been issued and distributed, and a number of articles written for the press.

The following publications have been prepared by the Chief Inspector during the year:

"Spraying for Control of Orchard Pests."—(Fifteenth Annual Report, Ohio State Farmers' Institute, 1905.)

"The Elm Leaf Beetle—a New and Destructive Shade Tree Pest in Ohio."—(Bulletin No. 4, Division of Nursery and Orchard Inspection, Ohio Department of Agriculture.)

"Some Destructive Grape Pests in Ohio."—(Bulletin No. 5, Division of Nursery and Orchard Inspection, Ohio Department of Agriculture.)

"The Fumigation of Nursery Stock, Its Effect on Insect and Plant Life and Its Value to Nurserymen and Fruit Growers."—(Bulletin No. 6, Division of Nursery and Orchard Inspection, Ohio Department of Agriculture.)

"A Preliminary Report on the Mosquitoes of Ohio."—(Read at annual meeting of the Ohio Academy of Science at Cincinnati, Ohio, December 2, 1905. Published in the Ohio Naturalist.)

"The Insects Affecting the Black Locust and Hardy Catalpa."—(Bulletin No. 7, Division of Nursery and Orchard Inspection, Ohio Department of Agriculture, by E. C. Cotton, Assistant Inspector.)

ACKNOWLEDGMENTS.

The writer would call attention to the hearty spirit of co-operation which exists between this Division and the departments of the Ohio State University which are working along allied lines, and would gratefully acknowledge the many courtesies extended during the past year.

The faithful and efficient work of the assistant inspectors has made possible the present standing of this Division. Several of these men have been called to positions of trust and responsibility in other states, and are carrying on similar or closely related lines of work. This not only reflects credit upon the Ohio Department of Agriculture, but is the best index of the character of the work which is being accomplished by this division.

Respectfully submitted,

A. F. BURGESS, *Chief Inspector.*

The Nursery and Orchard Inspection Law of the State of Ohio.

Section 1. The Ohio State Board of Agriculture is hereby empowered and directed to make such regulations as may be deemed necessary for the control of dangerously injurious insect pests and plant diseases, and for the prevention of the spread of San Jose scale, peach yellows, black knot and any other dangerously injurious insect pests or plant diseases, which are hereby declared a public nuisance, and are liable to be transmitted on nursery stock. Said board is hereby authorized to establish a division of nursery and orchard inspection in the Ohio Department of Agriculture, and to appoint a competent entomologist as the chief inspector of said division, and the necessary assistants, who shall, under the direction of the board have charge of the inspection of nurseries and orchards, as hereinafter provided; he may investigate, or cause to be investigated, outbreaks of dangerously injurious insect pests or plant diseases, and recommend suitable measures to be taken for their eradication or control; he is empowered to devise and test practical remedies for their suppression, and publish the results of these investigations and such other information as may be deemed necessary.

Sec. 2. Every nurseryman or other person in the State of Ohio who is engaged in growing trees, shrubs, plants and vines for sale, except such as are hereinafter specified, shall on or before the first day of July of each year place on file in the office of the Ohio Department of Agriculture an application for the inspection of his nursery stock and premises. Failure to file such application, or the disposal of uninspected stock, either by sale or gift, shall render the owner liable to the penalty provided for in section 8 of this act. The chief inspector shall examine, or cause to be examined, before September 15th of each year, or as often as may be deemed necessary by said board, the nurseries and premises of all parties whose applications for inspection have been filed. If upon such examination the nursery stock and premises appear to be free from San Jose scale, peach yellows, black knot and other dangerously injurious insect pests or plant diseases, a certificate of inspection shall be given to the owner or lessee stating the facts, and said certificate shall be issued before September 15th and shall be valid for one year from that date unless sooner revoked for cause. If any dangerously injurious insect pests or plant diseases are found on nursery stock or premises, the chief inspector shall order and enforce such treatment, as shall be deemed sufficient, before granting a certificate of inspection. Upon the written request of the owner or lessee of any nursery premises, that has been regularly inspected in accordance with the provisions of this section, the said board, through the chief inspector, may issue a certificate of fumigation, provided that all the requirements of the said board have been complied with, and that the said fumigation shall be in accordance with the directions, and under the supervision, of an authorized assistant inspector appointed by said board. The provisions of this act shall not apply to greenhouse plants and cuttings thereof, bulbs, flowers and vegetable plants.

Sec. 3. Every agent, dealer or any other person, not engaged in growing trees, shrubs, plants or vines for sale, who sells or delivers such stock, shall before delivering the same annually place on file in the office of the Ohio Department of Agriculture a statement made under oath, before an officer qualified to administer oaths in the locality where he may reside, or if a nonresident of the State in the locality where the said stock is sold or delivered, that the said stock has been duly inspected and was received by him accompanied with a valid official certificate of inspection or fumigation. Said statement shall also designate the name of the grower or growers from which such stock was obtained and the name of the owner or owners of the certificate or certificates under which the same is sold or delivered. The premises of any such person or persons as aforesaid shall be subject to inspection and to such regulations as may be deemed necessary by the Ohio State Board of Agriculture, for the prevention of the spread of dangerously injurious insect pests or plant diseases. Failure to file such sworn statement, or the sale or delivery of such stock after the certificate under which it was bought has become invalid shall render the agent or dealer liable to the penalties prescribed in section 8 of this act. The provisions of this section shall not apply to any person or persons who sell or deliver such stock from nurseries within this State that hold a valid certificate, which is provided for in this act, if the said stock is delivered direct from the nursery to the grower in the original package.

Sec. 4. Whenever a nurseryman, or any other person, shall ship, or deliver, within this State, except for scientific purposes, trees, shrubs, plants or vines, commonly known as nursery stock, not excepted in section 2 of this act, he shall place upon each car load, box, bale or other package, a copy of certificate provided for in section 2 of this act, and signed by the chief inspector, stating that the said stock is apparently free from dangerously injurious insect pests and plant diseases. The illegal use of said certificate, by changing, defacing, or placing it on uninspected stock, or using the same after the date of expiration or revocation, shall render the owner or shipper liable to the penalties prescribed for a violation of this act.

Sec. 5. Every package of trees, shrubs, plants or vines shipped into this state from any other state, territory, country or province, shall be plainly labeled on the outside with the names of the consignor and consignee, and a certificate stating that the contents have been inspected or fumigated by a state or government officer, and that the trees, shrubs, plants or vines therein contained are apparently free from dangerously injurious insect pests and plant diseases. If any trees, shrubs, plants or vines shall be shipped into this State without such certificate plainly affixed on the outside of the package, box or car containing the same, the facts must be reported within twenty-four hours to the chief inspector, or a regularly appointed assistant, by the railroad, express or steamboat company, or by any other person or persons carrying the same, and it shall be unlawful to deliver such property until it has been examined by a regularly appointed inspector, and by him certified to be apparently free from dangerously injurious insect pests and plant diseases. Any agent or common carrier, or persons carrying such property as aforesaid, who shall fail to give such notice as is hereby required, shall be deemed guilty of a violation of this act. When nursery stock is shipped into this State accompanied by a certificate, as herein provided, it shall be held as prima facie evidence of the facts therein stated, but the chief inspector, when he has reason to believe that any such stock is infested or infected, as hereinbefore described, is hereby authorized to cause the same to be examined. In case the same is found to be infested or infected by dangerously injurious insect pests or plant diseases, it shall be seized and the shipper shall be immediately notified, and after ten days from such seizure it may be declared a public nuisance and destroyed.

Sec. 6. Upon the petition of any freeholder or lessee within the State of Ohio, the chief inspector may cause to be examined any trees, shrubs, plants or vines, either on the premises of said petitioner, or in dangerous proximity thereto, as to the presence of dangerously injurious insect pests or plant diseases; and shall by himself, or through his assistants, have the right, within reasonable hours, to enter upon any premises in the prosecution of the duties defined in this act. If the examination discloses the presence of San Jose scale, peach yellows, black knot or any other dangerously injurious insect pests or plant diseases, the chief inspector shall notify the owner or lessee of the premises in writing of the facts by mailing such notice to his usual postoffice address. He shall also state the limit of time within which treatment must be applied by the owner or lessee, in accordance with the directions issued by the Ohio State Board of Agriculture, and specify such trees, shrubs, plants or vines as must be destroyed, also when they shall be declared a public nuisance, provided the aforesaid orders are not complied with. Should the owner fail to apply the treatment required in said notice in a satisfactory manner, and within the time specified, such treatment may be carried out under the direction of the chief inspector, and the entire cost of such treatment shall be certified to the county auditor of the county in which the property is located, and the same shall become a lien on the premises and shall be collected by the county treasurer as other taxes, and when collected shall be paid to the Ohio State Board of Agriculture. The owner of any premises as hereinbefore mentioned shall, in addition, be deemed guilty of a violation of this act, by reason of failure to comply with the requirements of said notice and shall be liable to the penalty provided.

Sec. 7. Whenever the chief inspector, or any duly appointed assistant inspector, shall order any trees, shrubs, plants or vines growing in this State, or any nursery stock that has been shipped in from outside the State, to be destroyed, and the owner shall fail, for ten days after notice of such order, to destroy the same, as directed by such order, such failure shall be deemed a demand on the part of the owner to have judicially determined the right to enforce such destruction, and shall act as a stay upon the proceedings until such judicial determination shall be had; and, in such case, the chief inspector, or any duly appointed assistant inspector, shall commence, without delay, an action in the probate court of the county in which the trees, shrubs, plants or vines, or nursery stock are located, by filing an affidavit therein, setting forth that the trees, shrubs, plants or vines or nursery stock are infested or infected with dangerously injurious insect pests or plant diseases, a description of the premises whereon the same are located, the name of the owner or lessee of such premises, and of all persons having an interest in such premises or trees, shrubs, plants or vines, and, if the same are nursery stock, the name of the person, firm or corporation in whose possession the same are found, and that ten days have elapsed since orders have been made for the destruction of the same, and that such orders have not been obeyed. Upon such affidavit being filed the probate judge shall issue a summons for all persons named in such affidavt, which shall contain a copy of said affidavit, commanding them to appear at a time to be fixed therein, not exceeding five days from the date thereof, to answer such complaint; such summons shall be directed to, and served by, the sheriff of the county, and may be served by him in any county in this State, and shall be served and returned, as directed by said probate court. At the time fixed in such summons, if the jury be not waived, said court shall order a jury to be drawn, and such jury shall be drawn, summoned, and impaneled, as in other civil cases, in probate courts, and the State of Ohio shall be plaintiff and the persons named in the affidavit shall be defendants, and no pleadings other than such affidavit shall be required, and the issue shall be whether said trees, shrubs, plants or vines, or nursery stock, are infested or infected with dangerously injurious insect pests or plant diseases, and all proceeding shall be had in the trial of such complaint, as are provided for the trial of civil cases, in probate courts. If the jury shall find that the orders for the destruction of the trees, shrubs, plants or vines, or nursery stock shall be obeyed, it shall return a verdict finding the issues with the plaintiff, but if it should fail to so find, it shall return a verdict finding the issues with the defendant, or defendants; and if the issues are found with the plaintiff, the court shall enter judgment against the defendant, or defendants, for costs, and cause execution to be issued therefor, and shall issue an order to the chief inspector, or assistant inspector, to enforce the orders by him made; but if the issues are found with the defendant, or defendants, the action shall be dismissed and the orders for destruction annulled, and the costs shall be ordered paid by the Ohio State Board of Agriculture, and paid by it out of any funds appropriated for carrying out this act. In the matter of taxing and apportioning costs, the court shall have the same equity powers as are now conferred upon courts of common pleas.

Sec. 8. Any owner or lessee who shall fail, neglect, or refuse to treat infested or infected trees, shrubs, plants or vines within the time, and in the manner prescribed in said notice, and any person who shall be ordered to destroy any trees, shrubs, plants or vines, or nursery stock, and shall fail, neglect or refuse to destroy the same, as ordered, within ten days after the probate court shall have issued its order to the chief inspector, or assistant inspector, to enforce the orders by him made, and any person who shall fail, neglect, or refuse to comply with, or obey any order made pursuant to the provisions of this act, or who shall fail, neglect, or refuse to comply with any of the requirements or provisions hereof, or who shall violate or neglect to carry out, or offer any hindrance to the carrying out of any of the provisions of this act, shall be adjudged guilty of a misdemeanor, and, upon conviction thereof, shall be fined not less than ten dollars or more than one hundred dollars for the first offense, and not less than fifty dollars or more than three hundred dollars for any subsequent offense, and the cost of prosecution, and stand committed until the same are paid. It shall be the duty of the prosecuting attorney of the county to conduct all prosecutions under this act, and all fines recovered shall be paid to the Ohio State Board of Agriculture. The probate court of each county in this State shall have original and final jurisdiction in all the prosecutions under any of the provisions of this act, and, for the trial of the same, such courts shall always be open regardless of the terms fixed in said courts for the trial of criminal cases, and the complainant shall not be required to give security for costs.

Sec. 9. The Ohio State Board of Agriculture shall make an annual report to the governor of the State concerning the operations of the division of nursery and orchard inspection, which shall give the number of nurseries inspected, the number of certificates issued, the number of trees treated and destroyed by the direction of the chief inspector, and such other information as may be deemed necessary.

Sec. 10. Said act passed May 10, 1902, entitled "An act to amend an act passed April 14, 1900, entitled 'An act to prevent the introduction and spread of the San Jose scale and other dangerous insects and dangerously contagious diseases affecting trees, shrubs, vines, plants and fruits' " is hereby repealed; and that this act shall take effect and be in force from and after its passage.

LIST OF OHIO NURSERYMEN.

1905-1906.

Name and Address of Owner.	Name of Nursery.	Cert. No.	Kind of Stock.	Acres of Stock
Adkins, C. B., North Kenova, O		197	Raspberry plants	3
Albaugh Nursery & Orchard Co., The, N. H. Albaugh, Pres., Phoneton, O		277	Fruit and shade trees and berry plants	111
Aleshire, Horace, Rutland, O		251	Raspberry plants	2
Allen, M. W., 507 W. 6th St., Cincinnati, O		104	Shade trees	4
Allen, W. A., R. R. 3, Geneva, O	Woodbine Nursery	434	Fruit and shade trees and berry plants	12
Almack & Lear, Coshocton, O		16	Fruit and shade trees; strawberry plants	⅔
Alspach, Clinton, Camp Chase, O		371	Strawberry plants	⅔
Anderson, U. S. G., Howell, O		195	Raspberry plants	2
Armstrong, A. C., Elkton, O		63	Berry plants	6
Ashford, J. C., Rogers, O		70	Berry plants	10
Aultfather, A., Mineral City, O		28	Berry plants	5
Aultfather, H. H., Minerva, O		30	Berry plants	12
Austin, H. K., East Akron, O		268	Strawberry plants	¼
Bailey, S., & Co., Ansonia, O	Bailey Nursery	254	Fruit and shade trees; berry plants	3½
Bailey, W. W., Yellow Springs, O	Yellow Springs Fruit Farm	212	Berry plants	7
Baird & Brady, Troy, O	Eureka Nursery	333	General nursery stock	20
Baird, W. A., R. R. 3, Bucyrus, O		25	Strawberry plants	3
Baker, C. V., Stoutsville, O	Wildwood Fruit Farm	88	Fruit trees	½
Baker, Ellsworth, R. R. 3, Barnesville, O		355	Berry plants	2
Barber, S. A., R. R. 1, Sheridan, O		191	Berry plants	2
Barker, J. H., R. R. 1, Middleport, O		243	Berry plants	14
Barnes, A., & Sons, R. R. 1, Mt. Healthy, O		103	General nursery stock	25
Barnes, J. A., R. R. 2, Lisbon, O		62	Berry plants	3
Barnes, M., & Co., R. R. 3, Mt. Healthy, O	Barnes' Nurseries	101	General nursery stock	50
Barnes, T. J., & Sons, R. R. 1, Sandusky, O		471	General nursery stock	5
Barr, L. M., R. R. 1, Dayton, O		394	Fruit trees and berry plants	4
Barth, J. F., New Bremen, O		22	Fruit trees and berry plants	½
Basinger, John H., Calla, O		126	Berry plants	4
Bear, Mrs. J. C. R. R. 8, Dayton, O	Bear's Nursery and Fruit Farm	437	General nursery stock	5

Bell, Simon, & Son, R.R. 3, Junction City, O.	Monday Creek Stock and Produce Farm	137	Shade trees and berry plants	1
Benner, J. H., & Sons, R.R. 3, Johnstown, O.	Mulberry Row Nursery	9	Strawberry plants	1
Benson, A. R., New Carlisle, O.		222	Raspberry plants	2
Benton, H., Ashland, O		481	Evergreens and strawberry plants	½
Bercher, George W., Morgantown, O		37	Apple trees	2
Berk, Theo., R. R. 13, Dayton, O		134	Berry plants	5
Bernard, A. F., Painesville, O.	Rosemont Nursery	403	Ornamental trees and shrubs	8
Bernard, F. F., Painesville, O.	Fairport Nurseries	404	Fruit trees and roses	5
Berry, P. D., R. R. 3, Dayton, O.		160	Berry plants	40
Bertolette, Glen, Columbiana, O.		121	Strawberry plants	3
Binnig, F. W., R. R. 1, Painesville, O.		420	Raspberry plants and grape vines	2
Birch, J. B., Carrollton, O	Carrollton Nursery	49	General nursery stock	25
Black's Nurseries, R. J. Black, Prop., R. R. 1, Bremen, O		80	Fruit trees and berry plants	15
Bodiker, W. E., R. R. 5, New Carlisle, O.		382	Peach trees and berry plants	2
Bohlender, Peter, & Son, Phoneton, O	Springhill Nursery	278	General nursery stock	70
Boice, M. C., Kyger, O.		320	Poplar trees	⅛
Bookwalter, L. A., R. R. 10, Dayton, O.		163	Shade trees, evergreens and blackberry plants	2
Booth, O. E., Barnesville, O		449	Raspberry plants	8
Bork, Philip, R. F. D., Tiffin, O.		98	Fruit trees and grape vines	2
Botkin, S. C., R. R. 4, New Carlisle, O	Bethel Fruit Farm	229	Berry plants	3 [illegible]
Bowen, John D., R. R. 1, Dexter, O		246	Strawberry plants	5
Bowman, D. C., R. R. 1, Sheridan, O		198	Berry plants	5
Bowman, Ed. B., Rockcamp, O		150	Berry plants	3
Bowmaster, Frank, Tippecanoe City, O		288	Osage orange	4
Brammer, Averal, Essex, O.		151	Raspberry plants	5
Brandt, L. M., Franklin, O.		133	Fruit trees and berry plants	1½
Brewster, E. M., Perry, O		465	Peach trees, strawberry plants and grape vines	5
Brookhart, S. A., R.R. 3, Wapakoneta, O.	Variety Fruit Farm	21	Fruit trees and berry plants	10
Brown Brothers, R.R. 2, Yellow Springs, O.	Farmers' Exchange Nursery	181	Fruit and shade trees	5
Brown, Charles C., R. F. D., Cardington, O.		40	Strawberry plants	1½
Brown, Leroy N., & Co., Clyde, O		442	Berry plants	2
Bucher, George S., R. R. 1, New Carlisle, O.		233	Raspberry plants	2
Buechley & Butts, Clayton, O.	Salem Nurseries	155	Fruit and ornamental trees	10
Buechley, E. M., R. F. D., Greenville, O.	Buechley Nursery	255	General nursery stock	8
Bull & Sutton, St. Paris, O	Champaign Nursery	214	Fruit trees and currant plants	6

LIST OF OHIO NURSERYMEN—Continued.

Name and Address of Owner.	Name of Nursery.	Cert. No.	Kind of Stock.	Acres of Stock.
Buren, Andrew V., R. R. 3, Bremen, O.		391	Raspberry plants	2½
Burks, Ambrose, R. R. 1, Springfield, O.		203	Berry plants	2
Burks, S. L., R. R. 1, Springfield, O		202	Berry plants	2
Burton, J. S., Casstown, O	Hilltop Nursery	334	Apple trees and berry plants	1¼
Cain, Jas. G., R. R. 1, Marietta, O.		450	Apple trees and grape vines	3
Call, S. W., Perry, O.		426	General nursery stock	80
Campbell, L. W., Barnesville, O.		369	Raspberry plants	3
Cannon, Asberry, Saltillo, O		138	Shade and ornamental trees and raspberry plants.	½
Carbin, G. W., Getaway, O		149	Raspberry plants	3
Carey, M. L., R. R. 1, Trotwood, O.		156	Berry plants	4
Carr, L. W., 3360 Detroit St., Cleveland, O.	Lakewood Nursery	347	Ornamental trees and shrubs	½
Carrico, J. H., North Kenova, O		189	Berry plants	2
Carr's, M. L., Sons, Yellow Springs, O.		183	General nursery stock	45
Carson, Wm., & Sons, R. R. 1, Middleport, O.	Carson Nursery	237	Fruit and shade trees and berry plants.	16
Cartwright, I. D., 22 St.Clair Bldg., Toledo,O		315	Cherry trees	⅛
Cassel Nursery Co., The, Mesh Cassell, Mgr., Cleveland, O.		396	Fruit and ornamental trees and shrubs.	3
Cassidy Bros., Augusta, O.		50	Berry plants	6
Chalfant, J. W., & Son, R.R. 1, Centerburg,O	Clear View Fruit Farm	26	Strawberry plants	2
Champion, H. J., Perry, O.		452	Fruit trees and shrubs	15
Childers, J. M., and Brammer, F. M., R. F. D., Rockwood, O.		99	Berry plants	7
Christian, S. B., R. R. 1, Bradford, O.		220	Raspberry plants	3
Clark, Katherine W., Ravenna, O.	Brookside Farm	263	Berry plants	2
Coffee, John C., Salem, O.		58	Berry plants	5
Cole, W. B., Painesville, O	Avenue Nursery	435	General nursery stock	100
Columbus Nursery Co., E. W. Yantes, Prop., 254 E. Fifth Ave., Columbus, O		446	General nursery stock	3
Conrad, W. H., Troy, O.	Summit Nurseries	466	Ornamental shrubs	⅛
Cook, J. H., & Son, R. R. 1, Perry, O.		421	Berry plants	4
Cook & Piper, Canton, O		346	Maple trees	½

Cool, J. W., Forgy, O.		235	Strawberry plants	2
Cope, Eliphas, Rogers, O.	Rogers Nursery	117	General nursery stock	10
Cope, H. D., & Sons, Rogers, O.		475	Berry plants	16
Cope, James, R. R. 1, Elkton, O.		65	Berry plants	10
Cope, Lycurgus, Elkton, O.		64	Berry plants	4
Cowen, Ellsworth, Barnesville, O.		357	Raspberry plants	10
Cowen, Robert, Barnesville, O.		358	Berry plants	4
Cowen, Ross, Barnesville, O.		359	Berry plants	15
Cox, E. G., R. R. 1, Rockwood, O.	Ensee Nursery	100	Apple trees	2
Craven, C. D., Fulton, O.		39	Berry plants	7
Crawford, Ed., R. R. 1, Rogers, O.		385	Berry plants	10
Crawford, John H., Rogers, O.		67	Berry plants	3½
Crawford, M. Co., The, M. Crawford, Mgr., Cuyahoga Falls, O.		332	Berry plants	5
Crawford, Milton, Salem, O.		59	Berry plants	5
Croft, R. G., Elkton, O.		118	Strawberry plants	½
Crow, Harry, R. R. 13, Dayton, O.		473	Apple and cherry trees	4
Crow, Willis, Kitts Hill, O.		152	Berry plants	3
Crow & Wolf, Fidelity, O.		289	Fruit trees	29
Cummins & Bowen, Vales Mills, O.		140	Fruit and shade trees	2
Davis, J. E. & Thos. Z., Delaware, O.		F.7	Fruit and shade trees	2 [illegible]
Davis, Russell, R. R. 4, Xenia, O.		177	Strawberry plants	½
Day, John, Fremont, O.	Fremont Nursery	310	General nursery stock	25
Detrick, Stephen, R. R. 2, Osborn, O.		161	Berry plants	4
Dewees, Thomas, R. R. 1, Barnesville, O.		424	Berry plants	1
Donnally, Chas. W., Yoho, O.		323	Berry plants	5
Earhart, W. H., Lexington, O.		97	Fruit trees and berry plants	1½
Eaton, J. P., R. R. 1, Proctorville, O.		87	Blackberry plants	4
Eaton, L. D., Labelle, O.		480	Apple trees and berry plants	6
Edgerton, W. D., R. R. 1, Barnesville, O.		360	Berry plants	4
Eli, W. C., Kyger, O.		321	Berry plants	3
Elleman, Isaac J., R. R. 1, West Milton, O.		472	Strawberry plants	1
Elsea, C. R., Lithopolis, O.	Chestnut Ridge Nurseries	33	General nursery stock	13
Ely, T. C., R. R. 2, Zanesfield, O.		79	Apple trees	⅛
Emmons, E. S., Millport, O.		342	Berry plants	7
English, J. R., 163 Lawrence St., Ironton, O.		436	Fruit and ornamental trees	1½
Ernst, Charles, Moscow, O.	Moscow Nurseries	410	Fruit and shade trees	15
Ernst, C. J., R. R. 1, Perry, O.		457	Raspberry plants	1
Esterly, Albert J., Columbiana, O.		122	Strawberry plants	1
Ewart, Mortimer, Mogadore, O.		269	Roses, berry plants and vines	1

LIST OF OHIO NURSERYMEN—Continued.

Name and Address of Owner.	Name of Nursery.	Cert. No.	Kind of Stock.	Acres of Stock.
Ewart, W. L., R. R. 18, Tallmadge, O.		270	Berry plants	2
Ewing, John T., R. R. 1, Pomeroy, O.		326	Strawberry plants	1
Ewing, T. E., Wooster, O	Wooster Nurseries	213	General nursery stock	4
Fall, J. C., Twin, O.		3	Grape vines	1½
Fardon, F. J., Geneva, O.		413	Strawberry plants	¼
Farmers' Nursery Co., The, T. J. Dinsmore, Pres., Tippecanoe City, O.		335	General nursery stock	102
Farnsworth, W. W., Waterville, O.	Clover Leaf Fruit Farm	316	Strawberry plants	5
Fauver, Irving, C., R. F. D., West Dover, O.		348	Strawberry plants	1½
Finck, David, R. R. 2, Somerset, O.		136	Fruit trees	3
Finney, T. T., Millersburg, O.	Edgewood Nursery	166	Fruit trees and raspberry plants	4
Fissel, F. A., & Bro., New Carlisle, O.	Silver Lake Nursery	252	Fruit trees	20
Fleming, T. J., Greenville, O.		256	Shade trees	¼
Flohr, Manasses, New Springfield, O	Pleasant Valley Fruit Farm	109	Strawberry plants	1½
Foor, Daniel, R. R. 2, Canal Winchester, O.		48	Berry plants	1½
Forbes, B. B., R. R. 1, Jefferson, O.		478	Strawberry plants	1
Ford Seed Co., Ravenna, O.		264	Fruit and shade trees; berry plants	2
Forest Nursery & Lumber Co., The, W. D. Stem, Sec'y, Ashland, O.		171	Catalpa trees	1
Fox, A. B., Greenspring, O		308	Raspberry plants	2
Fox, John & Son, R. F. D., Covington, O.		221	Fruit and poplar trees; berry plants	10
Franklin Park Floral Co., Albert Knopf, Pres., Columbus, O		381	Ornamental trees and shrubs	1/16
Frantz, C., & Sons, Cozaddale, O	Cozaddale Nurseries	78	General nursery stock	10
Frantz, E. B., & Co., Cedarville, O.	Tecumsah Nursery	180	General nursery stock	8
Frantz, F. B., R. R. 1, Springfield, O		205	Poplar trees and berry plants	6
Freeman, Mrs. A. D., & Son, Phoneton, O.	Poplar Grove Nursery	279	Fruit trees and evergreens	50
French, A. B., Clyde, O	The French Nursery	319	General nursery stock	35
Friesner, J. D., R. R. 1, Lancaster, O	Pleasant Ridge Nursery	74	Fruit trees and roses	10
Funderburg, J. C., New Carlisle, O.		253	Berry plants	1
Gantz, E. J., Brandt, O		286	Fruit trees and berry plants	20
Gantz, M. L., R. R. 1, Tippecanoe City, O.		285	Berry plants	2½
Gantz, Vesta C., R.R. 1, Tippecanoe City, O.		280	Fruit trees and raspberry plants	3

Geyer, J. L., & Son, Norwich, O.	Geyers' Nursery	387	Apple trees and evergreens	1
Geyer, P. B., R. R. 32, Norwich, O.		386	Fruit trees	2
Gilland, C. S., & Midkiff, E. D., R. R. 1, Pomeroy, O.	Hemlock Grove Nursery	329	Fruit trees, shrubs and berry plants	6
Gillet, G. W., R. R. 4, Wellington, O.		173	Strawberry plants	¼
Gold & Evans, Gibisonville, O.	Gibisonville Nursery	142	Fruit trees	4
Gold Nursery Co., T. H. Gold, Mgr., R. R. 1, Pomeroy, O.		328	Fruit and shade trees and berry plants.	5
Good & Reese Co., The, H. F. Good, Treas., Springfield, O.		276	Sixty-five greenhouses; greenhouse stock	..
Grabiel, W. H., R. R. 3, West Mansfield, O.		5	Berry plants	4
Grapes, R. L., Langsville, O.		250	Raspberry plants	1½
Grau, G. M., Mgr., Lucas, O.	The Mohawk Fruit and Preserving Co	96	Berry plants and grape vines	6
Graves, Mrs. E. C., R. R. 1, Rockcreek, O.		300	Strawberry plants	¾
Graves, W. J., Perry, O.		441	Peach trees and strawberry plants	2
Green, E. C., & Son, Medina, O.		259	Strawberry plants	2
Green, L. E., R. R. 1, Sharon Center, O.	Granger Nursery	260	Fruit and shade trees and strawberry plants	12
Green, L., & Son., Co., The, Perry, O.	Western Reserve Nursery	428	General nursery stock	300
Guynn, Ellis L., Glenrose, O.	Glen Rose Nursery	455	Fruit and shade trees	4
Guynn, William H., R. R. 2, Moscow, O.	Fruit Hill Nursery	462	Apple trees	2
Hagler, M. A., R. R. 6, Xenia, O.	Ridgeview Nursery	175	Fruit trees and berry plants	4
Halderman, J. W., Brandt, O.	Brandt Nursery	284	Berry plants	2
Hamilton, William G., Hendrysburg, O.		414	Raspberry and currant plants	5
Hanan, H. V., R. R. 2, Sharon Center, O.		261	Catalpa trees	¾
Hanauer, Frank J., Box 513, Dayton, O.		416	Ornamental trees and shrubs	3
Harbaugh, John C., Brandt, O.		440	Fruit trees and berry plants	6½
Harrington, William, Painesville, O.		397	Raspberry plants	1½
Harris, Garrett, R. R. 3, Larue, O.		24	Berry plants	4
Harrold & Wertz, Dalton, O.	Pleasant Hill Nursery	165	Fruit and ornamental trees and shrubs; strawberry plants	20
Harsh, D. D., Minerva, O.		29	Strawberry plants	2
Hartley, Alonzo & Co., 121 S. Mulberry St., Troy, O.	Hillside Nurseries	336	Berry plants	17
Hartley, J. B., Quaker City, O.		375	Berry plants	10
Hathaway, Wick, Madison, O.		423	Berry plants	3
Hathorn, John, R. R. 2, Rome, O.	Brook Fruit Farm	301	Strawberry plants	2
Hatten, H. C. & F. M., New Carlisle, O.	Gem Nursery	211	Berry plants	20
Haverland, B. H., Pleasant Run, O.		132	Shade trees and strawberry plants	3

LIST OF OHIO NURSERYMEN—Continued.

Name and Address of Owner.	Name of Nursery.	Cert. No.	Kind of Stock.	Acres of Stock.
Hawkins, J. K., R. R. 1, Kensington, O.		130	Berry plants	2
Hawkins, W. W., Kensington, O		52	Berry plants	9
Haymaker, A. O., Kent, O.		265	Berry plants	3
Heade & Greider, Brandt, O		327	Berry plants	4
Heck, S. J., Columbiana, O		127	Strawberry plants	1
Heffner, J. M., Brandt, O.		281	Berry plants	1¼
Heikes, George, Tippecanoe City, O.		291	Osage orange	4
Hemm, George, Sidney, O	Sidney Nurseries	19	Fruit and shade trees and shrubs	10
Henry, David, Bayard, O.		32	Berry plants	1¼
Herrick, D. R., Station F, Cincinnati, O.	S. S. Jackson Nursery	417	Fruit and ornamental trees	30
Hickman, S. E., R. R. 1, Elkton, O.		68	Berry plants	9
Higgins, D. N., R. R. 1, Athens, O.		185	Berry plants	1½
Hoag, I. W., R. R. 2, Berlin Heights, O.	Garden of Eden Fruit Farm	307	Shade trees and berry plants	5
Hoffman, C. W., R. R. 13, Dayton, O.		129	Fruit trees	12
Hoffman, Mrs. L. F., R. R. 13, Dayton, O.	Stillwater Nursery	135	Fruit trees	20
Holden, C. A., R. R. 1, Painesville, O.		409	Ornamental trees and shrubs	1
Holm, O., 221 Bell Ave., Cleveland, O.		456	Evergreens, ornamental trees and shrubs	5
Hoover, C. F., Hardin, O.		8	Apple and cherry trees; strawberry plants	1
Horvath, M. H., 49 Houghton Ave., Glenville, O.		451	Ornamental trees and shrubs	12
Houlette, John G., Columbiana, O.		114	Strawberry plants	3
Huff, Edward, R. R. 4, Xenia, O.		176	Fruit trees and berry plants	6
Hufford, Eli, R. R. 3, Bremen, O.		81	Berry plants	2
Hull Brothers, Perry, O		461	Raspberry plants	1
Hum, W. W., & Son, Columbiana, O.		112	Strawberry plants	2½
Humes, E. K., R. R. 4, Urbana, O.		1	Strawberry plants	3
Hunt, Louis, R. R. 1, Rockwood, O.	Hunt Brothers' Nursery	158	Apple trees and berry plants	2
Hutchinson, Fred, Clyde, O.	Nickle Plate Fruit and Produce Farm	330	Berry plants	6
Hutchison, John C., Barnesville, O.		361	Berry plants	3½
Jenkins, J., Winona, O.	Jenkins' Nurseries.	56	Fruit, ornamental and evergreen stock.	10
Johnson, F. H., Rocky Hill, O		200	Berry plants	3
Kaiser, Fred & Son, Athalia, O		85	Fruit trees	2

Keldow, A. E., Yellow Springs, O		182	Berry plants	2
Kelley, Irvin, Rockcamp, O.		145	Berry plants	2
Kellogg, B. A., Rogers, O.		236	Berry plants	4
Kelso, W. M., Box 99, Sabina, O		35	Plum trees	1
Kennedy Brothers, R. R. 1, Middleport, O.		242	Berry plants	6
Kennedy, O. H., Langsville, O		244	Berry plants	4½
King, Frank, R. R. 3, New Carlisle, O.		210	Berry plants	3
Kinney, Thomas, Greenspring, O		309	Berry plants	3
Kinsey, Wm. N., R. R. 1, Clayton, O	Kinsey's Nursery	411	Shade, evergreens, ornamental trees and shrubs	10
Kitts, E. S., Kitts Hill, O		154	Raspberry plants	20
Knauf, Frank, Canfield, O	Sunnyside Nursery	125	Fruit trees	3
Knopp, Alvin B., R. R. 1, Columbiana, O.		124	Berry plants	5
Kohankie, Henry, Painesville, O.	Ornamental Nurseries	405	General nursery stock	25
Kohankie, Martin, Painesville, O		433	Ornamental trees and shrubs	6
Kumler, H. L., R. R. 1, Baltimore, O.		90	Strawberry plants	2
Kunkler, Nicholas, R. R. 3, Bremen, O.		82	Berry plants	6
Kuth, J. S., R. R. 3, Richmond, Ind.	State Line Fruit Farm	4	Berry plants	25
Landis, Webster, R. R. 3, Brookville, O		157	Berry plants	1½
Langdon, Amos, Howell, O		193	Berry plants	7
Langdon, Wesley, Howell, O		194	Berry plants	5
Lawrence, Edward S., Perry, O		459	Ornamental shrubs and grape vines	1½
Lawrence, W. R., R. R. 6, Marion, O		356	Berry plants	20
Lehman, Joseph, Canal Winchester, O		43	Berry plants	7
Lehman, S. J., & Co., R. R. 2, Osborn, O	Enon Fruit Farm Nursery	204	Berry plants	7
Leonard, A. M., Piqua, O	Zinnia Ridge Nursery	217	Fruit and ornamental trees	1
Leonard, C. T., & Son, Andover, O		297	Strawberry plants	3
Linn, A. J., Quaker City, O		390	General nursery stock	5
Livingston Seed Co., Robert Livingston, Pres., 114 N. High St., Columbus, O		443	General nursery stock	10
Lowery, J. P., Quaker City, O		380	Plum trees	7
Lowery, William, Langsville, O		340	Berry plants	5
Lynd, E. T., R. R. 1, Sheridan, O		192	Berry plants	8
Lynd, James H., Ryansville, O		188	Raspberry plants	4
Lynd, W. L., Ryansville, O		187	Berry plants	10
Lynn, E. E., Salesville, O	Salesville Nursery	376	General nursery stock	6
Lyons, J. R., Clarkson, O		120	Berry plants	8
McBride, G. W., Box 526, Barnesville, O		463	Roses and raspberry plants	1
McBurney & Brill, Quaker City, O		377	Raspberry plants	3
McCann, James N., R. R. 1, Langsville, O.		247	Strawberry plants	1

LIST OF OHIO NURSERYMEN—Continued.

Name and Address of Owner.	Name of Nursery.	Cert. No.	Kind of Stock.	Acres of Stock.
McDaniel, Albert C., Rockwood, O		86	Berry plants	3
McDaniel, Sherman, R. R. 1, Basil, O		92	Strawberry plants	2
McFarland & Brill, R. R. 4, Quaker City, O.		368	Raspberry plants	2½
McFarland, Earl, R. R. 1, Springfield, O		201	Berry plants	3
McFarland, W. J., R. R. 4, New Carlisle, O.		230	Berry plants	1½
McJilton, J. F., & Son, Forgy, O		234	Berry plants	1½
McLane, George A., Barnesville, O		362	Berry plants	3
McLane, H. R., Barnesville, O		468	Berry plants	2
McNary & Gaines, Xenia, O	Xenia Star Nurseries	174	General nursery stock	200
McNary, T. W., R. R. 3, Cambridge, O		389	Fruit and poplar trees	1
McVitty, James, Perry, O	Ridgeview Nursery	432	General nursery stock	50
Markley, Horatio, R. R. 4, Mt. Gilead, O		41	Catalpa trees	⅛
Marlnee, J. P., Rogers, O		69	Berry plants	2½
Marshall & Long, Augusta, O	Augusta Nursery	51	Fruit and shade trees; strawberry plants	5
Marshall, S. M., Kensington, O		53	Berry plants	9
Martin, Alexander, Ravenna, O	Walnut Hill Farm	267	Strawberry plants	4
Martin, Albert S., R. R. 3, Ravenna, O		266	Strawberry plants	1½
Martin, H. W., Mapleton, O		164	Strawberry plants	5½
Martin, Horace, Elkton, O		61	Berry plants	5
Martin, J. C., Cherryville, O		153	Berry plants	7
Martin, W. K., Horatio, O	Climax Nursery & Berry Farm	219	Apple trees and berry plants	5
Meeks, W. R., 77 King Ave., Columbus, O		216	Shade trees and berry plants	½
Mercer, C. W., R. R. 1, Elkton, O		66	Berry plants	7
Merriman, B. F., Painesville, O	Merriman's Nurseries	439	General nursery stock	30
Metcalf, C. W., East Cleveland, O	Euclid Ave. Nursery Co	349	Ornamental trees and shrubs	8
Meyers, Frank, R. R. 3, Geneva, O		427	Berry plants	4
Might, S. A., New Waterford, O		111	Berry plants	22
Miller, John F., Whiteoak, O		38	Fruit trees	3
Miller, T. O., Frankfort, O		36	Berry plants	50
Miller, W. B., Killbuck, O		13	Fruit trees	1½
Mitchell, W. T., & Son, Beverly, O	Beverly Nursery	293	General nursery stock	15
Mooney, E. K., Madeira, O	Madeira Nurseries	467	Ornamental trees and shrubs	1
Moore, Alex., Barnesville, O		363	Strawberry plants	2

Moore, James A., R. R. 1, Cheshire, O		322	Fruit trees and raspberry plants	8
Moore, John, R. R. 1, North Kenova, O		294	Raspberry plants	1
Moore, Samuel R., 228 McIntire Ave., Zanesville, O	Glenmore Nursery	398	General nursery stock	5
Moore, W. A., Rogers, O		207	Berry plants	3
Morlan, M. B., & Sons, New Waterford, O		116	Berry plants	2½
Morrison, J. R., Cadiz, O	Cadiz Nursery	17	Fruit and shade trees	2
Morse, E. V., Burton, O		303	Fruit trees and berry plants	½
Motter, Fred, Tippecanoe City, O		292	Fruit and shade trees	3
Mox, Albert, R. R. 4, Delphos, O	Delphos Nursery	23	General nursery stock	5
Muchmore, W. O., Box 101, Fremont, O	Glenn Hill Nursery	311	Shade trees	½
Munnell, J. H., Ontario, O		95	Berry plants	3
Murphy, Frank, Donnelsville, O		232	Berry plants	7
Musselman, W. L., New Carlisle, O	Railroad View Nursery	208	Berry plants	12
Neal, Marion, Rockcamp, O		147	Berry plants	5
Neer, J. A., R. F. D., Huntsville, O		7	Berry plants	2
Neff, J. P., R. R. 4, Dayton, O		131	Fruit and shade trees; berry plants	5
Nelson, Frank and Fred, R.R. 1, Dexter, O		248	Strawberry plants	2
Niemann, C. G., Port Clinton, O		314	Cherry, peach and poplar trees	½
Noland, G. T., Wakatomika, O		14	Fruit trees	4
Noland, J. P., Peninsula, O		271	General nursery stock	12
Noland, W. A., West Carlisle, O		15	Fruit trees	2
Norman, T. R., R. R. 1, Painesville, O		464	Ornamental trees and shrubs	2
Norris, J. A., & Co., 612 S. Market St., Troy, O		353	Fruit and ornamental trees	1/16
Notestein, J. B., Creston, O	Willow Dale Nursery	169	General nursery stock	2
Oberst, R., R. R. 1, Helena, O		313	Strawberry plants	½
Ogden, Noah, R. R. 1, Dexter, O		470	Strawberry plants	5
Osbourne, W. R., R. R. 1, Baltimore, O		89	Strawberry plants	2
Overholser, Jerry, R. R.. 7, Xenia, O		178	Berry plants	2
Oyler, M., R. R. 1, Lithopolis, O		44	Berry plants	8
Parker, T. E., Barnesville, O	Belvideer Fruit Farm	364	Berry plants	2
Parmele, H. L., R. R. 1, North Jackson, O		258	Roses and berry plants	1½
Parry, F. R., & Sons, Sarahsville, O		388	Fruit trees and berry plants	6
Pearson, George, R. R. 3, Troy, O	Maple Grove Nursery	337	Fruit and shade trees; berry plants	4
Peirce, Walter C., R. R. 3, Troy, O		338	Strawberry plants	2
Perry, George R., Salesville, O		378	Strawberry plants	2
Peters, Geo., & Co., Troy, O	Fairmount Nurseries	345	General nursery stock	113
Peters, R. E., R. R. 2, Gallipolis, O		324	Berry plants	5
Peters, W. J., & Co., Troy, O	Ridge Avenue Nursery	343	Apple trees and evergreens	8
Peters, W. J. & N. B., Troy, O	Willow Lake Nursery	344	Fruit and shade trees; ornamental shrubs	21

LIST OF OHIO NURSERYMEN—Continued.

Name and Address of Owner.	Name of Nursery.	Cert. No.	Kind of Stock.	Acres of Stock.
Peterson, John C., R. R. 7, Springfield, O		374	Strawberry plants	½
Pickett, G. S., Clyde, O	Clyde Nursery	341	General nursery stock	35
Pierce, L. B., R. R.. 18, Tallmadge, O		272	Berry plants	6
Plum, D. S., & Hileman, Louis, R. R. 1, Sullivan, O		172	Fruit trees and berry plants	1½
Plummer, D. P., R. R. 2, Bellefontaine, O		6	Fruit and shade trees; berry plants	10
Plummer, George, R. R. 4, New Carlisle, O		226	Berry plants	2
Post & Cummings, Painesville, O	Nickelplate Nursery	351	Peach trees, roses and grape vines	5
Powell, H. A., Rockcamp, O		146	Berry plants	2
Quick, B. F., Geneva, O		412	Berry plants	2
Raby, William, & Son, Millersburg, O		167	Berry plants	6
Ralston, S. R., R. R. 7, Mansfield, O		94	Berry plants	3
Rasor, George P., Wadsworth, O		262	Berry plants	4
Rathbun, Bert, Clyde, O		306	Berry plants	3
Rathbun, J. F., Clyde, O		384	Raspberry plants	1½
Ray, F. L., Claridon, O		302	Berry plants	3
Read, W. B., New Waterford, O		110	Berry plants	15
Reeves, E. A., Fairmont, O	Lake View Nursery	400	General nursery stock	10
Reichenbach, John, 892 E. Main St., Columbus, O		372	Grape vines	1/16
Reischman, Jacob, Barnesville, O		365	Raspberry plants	5
Rice, James M., R. F. D., Fremont, O	Riverside Fruit Farm	312	Berry plants	3
Richey, L. L., Pataskala, O		10	Apple trees	1
Riffle & Deeds, Ansonia, O	Ansonia Nurseries	257	Fruit and shade trees; berry plants	9
Riley, J. N., Washington C. H., O	Fayette Nursery	444	General nursery stock	7
Robinson, R. N., R. R. 10, Sidney, O		18	Berry plants	10
Rocky, J. W., Miamisburg, O		429	Peach and plum trees	¾
Rocky River Nursery, The, Charles Fries, Prop., Cleveland, O		354	General nursery stock	12
Rogers, George W., Sybene, O		196	Raspberry plants	3
Rogers, H. C., Mechanicsburg, O		479	Catalpa trees	1
Rogers, L. S., R. R. 2, Bowling Green, O	Silverwood Fruit Farm	317	Berry plants	3
Rogers, Marshall H., R. R. 2, Jamestown, O.	White Oak Fruit Farm	179	Berry plants	8

Romine, Melzer, & Graham, John, Langsville, O		239	Berry plants	5
Rose, John, Clyde, O		402	Berry plants	1
Rose, Lucius, 418 Vine St., Akron, O		273	Fruit and shade trees, shrubs and strawberry plants	7
Rothfus Brothers, R. R. 1, Lithopolis, O		45	Strawberry plants	2
Royer, George W., Columbiana, O		123	Berry plants	1
Rueb, A., & Sons, Chillicothe, O		460	Fruit trees and strawberry plants	3
Rutherford, M. J., Langsville, O		240	Berry plants	12
Ryerson, D. P., Norwalk, O		448	Strawberry plants	1½
Sage, J. M., Chardon, O		304	Fruit trees and strawberry plants	2½
Sallee, Milton P., R.R.2,Canal Winchester,O		73	Berry plants	3
Sanders, J. M., Hillsboro, O		75	Fruit and shade trees	3
Sawyer, Frank, Norwalk, O	Norwalk Nursery	305	Fruit, shade and ornamental trees and shrubs	8
Scarff, W. N., New Carlisle, O		287	General nursery stock	100
Schmeltzer, Anthony, R. R. 1, Bremen, O		139	Berry plants	2
Scheidegger Bros., R. R. 1, Baltimore, O		93	Strawberry plants	5½
Schramm, Charles, Athalia, O	Schramm Nursery	392	Fruit trees	4
Schroerluke, George, 525 South St., Piqua,O		218	Carolina poplars	1/16
Schweitzer, W., Pandora, O		453	Fruit trees and berry plants	¼
Shaffner, David H., R. R. 1, Mansfield, O		42	Strawberry plants	1
Shafford, Ward, Tippecanoe City, O	Shafford Fruit Company	290	Berry plants	5
Shaner, W. R., Cutler, O	Plymouth Nursery	325	General nursery stock	3
Sheff, W. A., Proctorville, O		84	Berry plants	2
Shields, J. H., Wapakoneta, O	Wapokoneta Nursery	331	Fruit and shade trees	3
Shockey, H. W., R. R. 4, New Carlisle, O		228	Currant and strawberry plants	1½
Siebenthaler, John, R. R. 1, Dayton, O		406	General nursery stock	7
Simanton, I. V., R. R. 3, Ashland, O		170	Strawberry plants	3
Simpkins, H. S., & Sons, R. R. 2, West Williamsfield, O		296	Fruit and ornamental trees and strawberry plants	4
Sipe & May, New Carlisle, O		227	Berry plants	1
Slaughter, Jacob, Osborn, O		162	Berry plants	5
Slanker, W. T., Brandt, O		282	Peach trees and berry plants	9
Smith, L. A., R. R. 1, Lithopolis, O		46	Berry plants	1½
Smith Bros., R. R. 2, Canal Winchester, O		72	Berry plants	3
Smith, Dan, Kyger, O		418	Berry plants	5
Smith, Henry, R. R. 5, St. Paris, O		215	Berry plants	5
Smith, H. W., R. R. 4, Wilmington, O		407	Apple and ornamental trees	1

LIST OF OHIO NURSERYMEN—Continued.

Name and Address of Owner.	Name of Nursery.	Cert. No.	Kind of Stock.	Acres of Stock.
Smith, Stephen A., R. R. 1, Lithopolis, O		47	Berry plants	2
Souders, W. S., Rogers, O	Highland Fruit Farm	71	Berry plants	12
South, John, Creston, O	Creston Nursery	168	Fruit trees and berry plants	1
Stackhouse, B. F., Lisbon, O	Mt. Pleasant Small Fruit Farm	60	Berry plants	20
Stackhouse, Jesse, Kensington, O		54	Berry plants	15
Stackhouse, S. W., North Georgetown, O		57	Berry plants	2
Starbuck, Addison, Colerain, O	Colerain Nursery	401	General nursery stock	8
Steed, C. L., R. R. 1, Ironton, O		107	Berry plants	1½
Stein, S. F., R. R. 2, Zanesville, O		399	Fruit and shade trees and evergreens	4
Stephens, A. P., Perry, O		430	Fruit trees and berry plants	10
Stillman, Frank A., Andover, O		393	Berry plants	5
Stillman, Mrs. Louise, Andover, O		298	Strawberry plants	3/16
Stockman, E. G., Prospect, O		458	Apple and maple trees	½
Stoner, Philo, Pulaski, O		318	Berry plants	2
Stormes, H. G., Andis, O		108	Raspberry plants	4
Storrs & Harrison Co., The, Painesville, O	Painesville Nurseries	408	General nursery stock	800
Strausburg, J. R., New Carlisle, O		223	Berry plants	1½
Strawther, James, Urbana, O		2	Strawberry plants	3
Strohn, C. F., Hanoverton, O		55	Berry plants	7
Sutton, John H., R. R. 1, Sheridan, O		186	Apple trees and raspberry plants	8
Swably, Gustus, Box 34, Tiffin, O		383	Berry plants	8
Swartzwelder, N. H., 220 S. Second St., Ironton, O		199	Fruit trees and raspberry plants	1
Swick, W. C., R. R. 3, Bremen, O		415	Raspberry plants	2½
Taggart, J. W., New Carlisle, O		231	Berry plants	1
Taggart, W. I., New Carlisle, O		225	Berry plants	7
Templin Co., The, M. B. Templin, Pres., Calla, O		206	Shrubs and strawberry plants	4
Thompson, J. E., R. R. 1, North Kenova, O		190	Berry plants	3
Thrash, Levi, Carroll, O		34	Berry plants	20
Tichenor, John B., Clyde, O		469	Berry plants	4
Toland, T. C., Calcutta, O		119	Berry plants	8
Trainer, Mathew & Son, R. R. 1, Zaleski, O	Lone Star Nursery	141	Fruit trees	2½

Trout, E. A., R. R. 2, Centerburg, O		11	Fruit trees and berry plants	1
Turner, D. L., R. R. 1, Dexter, O		245	Strawberry plants	2
Uhrig, Leonard, R. R. 1, Dayton, O		447	Maple trees and evergreens	½
Uhrig, Peter, Jr., New Carlisle, O		209	Fruit trees and berry plants	7
Union, W. L., R. R. 1, Barnesville, O		477	Raspberry plants	2
Vandervort, J. M., & Son, Wilmington, O	New Antioch Nursery	77	Fruit and ornamental trees	25
Viers, M. F., Tallmadge, O		274	Berry plants	4
Wagner, B. P., Sidney, O	Wagner Park Conservatories	20	Ornamental shrubs	5
Wagner, William, New Carlisle, O		224	Raspberry plants	1
Walker, S. F., Georgetown, O	Georgetown Nursery	431	Fruit trees	3
Ward, H. H., & Son, Langsville, O		238	Berry plants	2
Weaver, J. W., Columbiana, O		113	Strawberry plants	1½
Webb, J. H., Essex, O		105	Raspberry plants	3
Webb, T. O., & Son, Essex, O		144	Berry plants	4
Webber, D. H., West Williamsfield, O		295	Strawberry plants	1½
Webster, Mrs. S. R., R. R. 1, Rockcreek, O	Rose Cottage Nursery	299	Shrubs and strawberry plants	¼
Webster, Walter A., Quaker City, O		379	Strawberry plants	2
Welch, Mark, R. R. 1, Painesville, O		419	General nursery stock	18
Weldy, B. F., Tippecanoe City, O		373	Peach trees	4
Wellman, George, New Knoxville, O		395	Fruit and shade trees; berry plants	5
Weltz's Sons, Leo, Wilmington, O	Wilmington Nursery	76	General nursery stock	75
West, T. B., Perry, O	Maplebend Nursery	438	General nursery stock	30
West Brothers, Perry, O		476	Berry plants	4
Westfall, E., & Sons, Pointrock, O		249	Apple trees	1½
Wetzel Brothers, Painesville, O		352	Ornamental trees and shrubs	3
Whipple, I. O., Madison, O		422	Strawberry plants	3
Whitacre, Thomas L., East Rochester, O		31	Berry plants	12
Whitney, C. L., 116 Belmont St., Warren, O	Evergreen Nursery	275	Fruit trees, evergreens and shrubs	5
Wilcox, C. H., Barnesville, O		366	Berry plants	2
Wilhelmy, Chris., 1711 Pearl St., Cleveland, O	Forest City Nursery	350	Ornamental trees and shrubs	½
Williams, B. F., Rockcamp, O		148	Raspberry plants	3
Williams, E. C., Zanesfield, O		159	Fruit and shade trees, and berry plants	5
Williamson, Alfred B., R. R. 5, Salem, O		128	Strawberry plants	½
Willis, J. G., Rockcamp, O		106	Raspberry plants	2
Willison, E. C., Baltimore, O		91	Berry plants	1
Wilson, Emmet, Dyesville, O		445	Apple trees and raspberry plants	2
Wilson, Guy C., R. R. 1, Barnesville, O		367	Raspberry plants	1½
Windle, F. P., Columbiana, O		115	Strawberry plants	2
Winslow & McDonald, Tiverton, O	Tiverton Nurseries	12	Fruit trees, shrubs and strawberry plants	10
Wolfe, A. W. & K. J., R. R. 1, Trimble, O		184	Apple trees	1

LIST OF OHIO NURSERYMEN—Concluded.

Name and Address of Owner.	Name of Nursery.	Cert. No.	Kind of Stock,	Acres of Stock.
Woods, John H., Dearing, O.		143	Raspberry plants	4
Worman, Frank T., & Co., Troy, O		370	Fruit and shade trees, shrubs and blackberry plants	½
Wright Brothers, Langsville, O		241	Berry plants	18
Wright, P. E., R. R., 3 Bremen, O		83	Berry plants	2
Wriker, States, Clyde, O		474	Berry plants	4
Wyss, Daniel, New Philadelphia, O	New Philadelphia Nursery	27	General nursery stock	5
Yetter, Charles, Clyde, O.		454	Raspberry plants	2
Young, Louis, Lebanon, O		102	Fruit trees	½
Zettler Company, The, Canton, O		425	Fruit and shade trees, and shrubs	3
Ziegenfelder, J. B., Troy, O		339	Strawberry plants	3
Zincks, Christopher, Brandt, O		283	Peach trees and berry plants	4
Total, 481 Nurseries.			Total	4,706

AGENTS FOR NURSERY STOCK IN OHIO.

In this list are given the names of nurseries, followed by the names of the agents who have filed sworn statements since July 1, 1905, in accordance with the Nursery and Orchard Inspection Law of the State. These statements are void after June 1, 1906:

- Albertson and Hobbs, Bridgeport, Indiana.
  - H. D. Brubaker,
  - J. H. Young.
- The Allen Nursery Company, Rochester, New York.
  - James R. Amos,
  - A. L. Calihan,
  - Joseph T. Harman,
  - H. A. Hawley,
  - D. E. Van Tilburgh,
- Augustine & Company, Normal, Illinois.
  - J. M. Nossett.
- The Bremen Nursery Company, Bremen, Indiana.
  - I. J. McCormic.
- M. L. Carr's Sons, Yellow Springs, Ohio.
  - Frank Sears.
- The Chase Brothers' Company, Rochester, New York.
  - R. E. Abbott,
  - Orlando Allen,
  - J. A. Carpenter,
  - Aquilla Carr,
  - David Christie, Sr.,
  - William Collins,
  - Clinton D. Gard,
  - Elam Gibbons,
  - Morris Henshaw,
  - J. Fred Holliger,
  - Alexander Hukill,
  - J. F. Kempton,
  - John S. Kennedy,
  - William P. Lewis,
  - L. Lukemire,
  - Joseph S. Metzner,
  - John Meyer,
  - William G. Moffet,
  - J. F. Montgomery,
  - John Moore,
  - W. M. Morrow,
  - Harvey Ortt,
  - Cyrus Pierce,
  - W. C. Robe,
  - H. H. Sandoe,
  - Henry Swaisgood,
  - J. L. Talbott,
  - J. P. Titus,
  - Frank L. Traphagen,
  - George W. Wales,
  - Samuel Weaver,
  - E. T. White,
  - J. H. Woodmansee.
- John Day, Fremont, Ohio.
  - J. C. Vollmer.
- Emmons & Company, Newark, New York.
  - William J. Campbell,
  - F. M. Farmer,
  - A. B. Huff,
  - Tobias S. Weisel.
- The Farmers' Nursery Company, Tippecanoe City, Ohio.
  - J. F. Cave.
- E. B. Frantz & Company, Cedarville, Ohio.
  - M. B. Johnston.
- The French Nursery, Clyde, Ohio.
  - Peter Augsburger,
  - T. H. Barnes,
  - J. W. Bradfield,
  - C. R. Haasenplug,
  - E. L. Johnson,
  - L. C. Kinley,
  - William P. Mahon,
  - W. P. Mills,
  - G. H. White.
- Glen Brothers, Rochester, New York.
  - S. R. Baughman,
  - George W. Bope,
  - Richard Cowling,
  - E. J. Larrick,
  - Henry A. Raub,
- Orville D. Green, Syracuse, New York.
  - Frank W. Dippo.

The Greening Brothers' Nursery Company, Monroe, Michigan.
John Bettschen,
John Blondel,
W. W. Bowyer,
B. L. Broderson,
G. W. Chiles,
G. W. Correll,
Reid Davis,
S. B. Donel, Sr.,
Henry Flater,
G. J. Gerber,
Charles D. Gibson,
William S. Hall,
Sherman C. Hallett,
William P. Hughes,
F. M. Koons,
F. A. Lewis,
Charles A. Linfoot,
John S. Neuschwander,
Daniel W. C. Rau,
H. E. Reed,
J. P. Shirley,
Phil Smith,
John Theobald,
Jackson Underhill.

Fred E. Grover & Company, Rochester, New York.
G. W. Chiles.

C. F. Gustin, Adrian, Michigan.
Ray M. Mann.

The M. H. Harman Company, Geneva, New York.
H. F. Fink,
C. M. Kingsbury,
Bernard McCaffrey.
J. C. Merrin,
Zona B. Morris.

The Hawkes Nursery Company, Rochester, New York.
Daisy Farneman,
John Farneman.

E. A. Henby & Company (Hancock County Nurseries), Greenfield, Indiana.
Oscar B. Crider,
Stephen A. Loyd,
Benjamin F. McCarty,
Jasper N. McCarty,
William F. Rigdon.

J. K. Henby & Son (Pan Handle Nurseries). Greenfield, Indiana.
J. W. Johnston.

The I. E. Ilgenfritz Son's Company, Monroe, Michigan.
A. C. Barr,
John F. Barr,
George M. Bennett,
William Dart,
Myron O. Ford,
C. E. Hanna,
Levi D. Keegan,
William Lau,
J. T. Long,
C. W. McColley,
Joseph McCurdy,
A. J. McLain,
H. H. Roberts,
Ferdinand Schmidt,
Barney P. Shepler,
Asa Smith,
Henry L. Snavely,
J. A. Wilber,
Ed. Wilcox.

The Kalamazoo Nurseries, Kalamazoo, Michigan.
J. W. Bradfield,
J. D. Brown,
George Evans,
W. H. Keil,
J. W. Logan,
C. C. Paddison,
W. W. Putt,
George W. Robinson,
S. A. Ryan,
J. H. Schalk,
D. Smittle,
I. N. Strain,
T. R. Taylor,
D. K. Wagner.

Knight & Bostwick, Newark, New York.
H. H. Burt,
Gustavis Crow,
John C. Els,
Tal Gharky,
G. A. Kempton,
James D. Kenney.
Adam Lee,
Peter McKevitt,
J. L. Neiswanger,
L. F. Ross,
J. B. Webb.

A. J. McGraw & Company, Geneva, New York.
William Browning,
Charles W. Delver,
Josephus Ramsey,

McLean County Nursery Company, Normal, Illinois.
U. G. Owens,
A. B. Tullis,
E. A. Tuttle.

The Michigan Nursery Company, Monroe, Michigan.
J. J. Ross.

Missing Link Apple Company, Clayton, Illinois.
J. D. Brown.

William C. Moore & Company, Newark, New York.
William Booth,
B. C. Britton,
Vern W. Lyman,
L. S. McBride,
James McMichael,
Frank W. Peebles,
William Ross,
A. M. Sims,
Solomon Vance,
C. R. Ward,
L. S. Woodworth.

G. N. Moyer, Laketon, Indiana.
O. J. Caris,
Isaac Thompson.

Oregon Nursery Company, Salem, Oregon. (Eastern office, Detroit, Michigan.)
Jerome Cush,
Daisy Farneman,
John Farneman,
James McMichael,
W. R. Tanner.

The Perry Nursery Company, Rochester, New York.
A. A. McClelland.

Saddler Brothers, Bloomington, Illinois.
J. W. Johnston,
G. J. Slutz.
D. J. B. Smith.

Joseph W. Schuette & Company, St. Louis, Missouri.
James Stermer.

W. & T. Smith, Geneva, New York.
H. S. Dawson.

Spielman Brothers, Adrian, Michigan.
W. H. Simpson.

The Stark Brothers' Nurseries and Orchards Company, Louisiana, Missouri.
John S. Allen,
J. T. Barrett,
J. C. Baxter,
S. W. Bigler,
J. W. Bradfield,
Edmund Burke,
W. P. Curtis,
J. M. Daniel,
John E. Emmons,
J. W. Fankhauser,
L. C. Geib,
Alridge Grimsley,
John R. Groff,
Martin V. B. Grush,
J. R. Houser,
J. B. Hufford,
L. E. Huston,
James Ingram,
M. N. James,
M. A. Kauffman,
Nick Keil,
George J. Krebs,
Charles M. Laughman,
A. D. Leffel,
Alexander McConley,
S. R. McGee,
James W. McKee,
Elmer J. Miller,
Simon A. Monroe,
R. M. Pemberton,
John M. Powell,
S. O. Preston,
George W. Rogers,
Jacob Sherman,
Kellam Smith,
J. B. Titus,
H. H. Trego,
S. E. H. Vaughn,
James A. Weigle,
John Wilkinson,
T. C. Wilson,
E. C. Young.

C. W. Stuart & Company, Newark, New York.
James W. Allen,
C. W. Berry,
Joseph Boyer,
J. L. Brill,
L. D. Cartwright,
David Cornthwaite,
Sylvester Darby.
F. E. Edmondson,
C. M. Hayman,
W. A. Heron,
A. S. Jones.
Noah Long,
Martin V. McKim,
Mathias Otto,
A. D. Reid,
John Schimmel,
Levi Spitler
John D. Thorp,
C. G. Tucker,
Robert B. Walker,
Theodore Wilson,

H. S. Taylor & Company, Rochester, New York.
John W. Taylor.

C. L. Vaninwagen, Newark, N. Y.
Henry A. Raub.

Washington Nursery Company, Toppenish, Washington. (Eastern office, Detroit, Michigan.)

J. H. Long,
W. M. Titsworth.

Western New York Nursery Company, Rochester, New York.

J. E. Altenberger,
D. Bryan,
J. F. Bullock,
T. T. Collins,
J. L. Davis,
R. E. Hopkins,
J. F. Kail,
J. P. McGuire,
W. Schweitzer,
W. F. Starr.

The J. M. T. Wright Nursery Company, Portland, Indiana.

John A. Collins,
Adam S. Potteiger,
David R. Wright.

DEALERS IN NURSERY STOCK IN OHIO.

The following list gives the names and addresses of dealers in nursery stock who have filed sworn statement since July 1, 1905, as is required by law; also the names of the nurseries from which the stock was obtained. Statements void after June 1, 1906:

William Bebb, Rockdale Avenue, Avondale, Cincinnati, Ohio.
Stock from A. Barnes & Sons, Mt. Healthy, Ohio; Willadean Nursery Company, Warsaw, Kentucky.

D. W. Beckley, Richwood, Ohio.
Stock from George Hemm, Sidney, Ohio; George S. Josselyn, Fredonia, New York.

Charles F. Hanna, 1333 Woodland Hills Avenue, Cleveland, Ohio.
Stock from The Stors & Harrison Company, Painesville, Ohio.

M. O. Harmon, Prospect, Ohio.
Stock from McNary & Gaines, Xenia, Ohio; The Storrs & Harrison Company, Painesville, Ohio.

F. X. Hemm, Piqua, Ohio.
Stock from George Hemm, Sidney, Ohio.

Gabriel Izer, R. R. 2, Farmersville, Ohio.
Stock from John Siebenthaler, Dayton, Ohio.

George C. Jenkins, Washington C. H., Ohio.
Stock from The Perry Nursery Company, Rochester, New York.

Oliver King, Crooksville, Ohio.
Stock from R. S. Johnston, Stockley, Del.

George E. Lacy, Greenfield, Indiana.
Stock from J. K. Henby & Son, Greenfield, Indiana; E. A. Henby & Company, Greenfield, Indiana.

Joseph Litzenberg, Findlay, Ohio.
Stock from W. B. Cole, Painesville, Ohio; H. J. Champion, Perry, Ohio.

The McAdams Seed Company, Columbus Grove, Ohio.
Stock from Albertson & Hobbs, Bridgeport, Indiana.

The J. M. McCullough's Sons Company, 316 Walnut Street, Cincinnati, Ohio.
Stock from M. Barnes & Company, Mt. Healthy, Ohio; The Donaldson Company, Warsaw, Kentucky; Albertson & Hobbs, Bridgeport, Indiana; The Storrs & Harrison Company, Painesville, Ohio; S. S. Jackson's Nursery, Cincinnati, Ohio.

John Mickelson, 42 Euclid View Avenue, Glenville, Ohio.
Stock from Henry Kohnkie, Painesville, Ohio; Martin Kohankie, Painesville, Ohio; W. B. Cole, Painesville, Ohio; The Storrs & Harrison Company, Painesville, Ohio.

Joseph Ratterman, Sidney, Ohio.
Stock from George Hemm, Sidney, Ohio; Augustine & Company, Normal, Illinois.

David F. Shimp, Lyndon, Ohio.
Stock from Leo Weltz's Sons, Wilmington, Ohio; J. G. Harrison & Sons, Berlin, Maryland.

T. B. Stone, Lorain, Ohio.
Stock from The L. Green & Son Company, Perry, Ohio; T. S. Hubbard Company, Fredonia, New York.

A. A. Tillotson, Howard Street, Akron, Ohio.
Stock from The Storrs & Harrison Company, Painesville, Ohio.

W. Wilson, Marion, Ohio.
Stock from the Storrs & Harrison Company, Painesville, Ohio; McNary & Gaines, Xenia, Ohio.

Charles J. Zerck, Oak Harber, Ohio.
Stock from The Storr's & Harrison Company, Painesville, Ohio; W. B. Cole, Painesville, Ohio.

BOARD OF
LIVE STOCK
COMMISSIONERS.

PAUL FISCHER,
STATE VETERINARIAN.

STATE OF OHIO.
Department of Agriculture
W. W. MILLER, SECRETARY.

STATE BOARD
OF
AGRICULTURE.

A. F. BURGESS,
CHIEF INSPECTOR OF
NURSERIES AND ORCHARDS.

ANNUAL REPORT
OF THE
STATE BOARD OF LIVE STOCK COMMISSIONERS OF OHIO.

COLUMBUS, OHIO, November 7, 1905.

To His Excellency, Myron T. Herrick, Governor of Ohio:

SIR:—The State Board of Live Stock Commissioners has the honor to submit herewith its fourth annual report. It contains a general statement of its transactions from November 8, 1904, to November 7, 1905, together with a brief review of its work since the date of its reorganization in May, 1902, and suggestions as to the needs of the Board for the next two years. The appendix contains the laws relating to live stock and to the board of live stock commissioners, the sections relating to the regulation of the practice of veterinary medicine, rules and regulations adopted by the Board for the shipment of live stock into the state and other matters of interest relating to the work of the Board.

Ever since the present Board was organized, nearly four years ago, its efforts have been directed toward developing its work along lines that promised to lead to definite results. With this aim constantly in view much time has been devoted to the study of sanitary problems affecting our live stock industry as well as of the latest and most effective means employed by some of our states, and by foreign countries, for the improvement of existing conditions. Although the funds provided have been limited, the results of the actual and practical field work that has been accomplished have been gratifying. There are many indications that this work has been appreciated and the Board trusts that the time has arrived when the growing demand for more extended sanitary control of the live stock interests of this state, with increased protection from losses by preventable diseases, will be met by an adequate, not to say liberal, financial support from the General Assembly.

The contagious and infectious diseases of live stock that have appeared in the state in the course of the past four years, and which have been given attention by the Board, include the following:

Among Horses—Glanders, mange, coital exanthema and rabies.

Among Cattle—Tuberculosis, mange, rabies, infectious gastro-enteritis and haemoglobinaemia.

Among Sheep—Scabies, nodular disease, so-called foot rot and rabies.

Among Swine—Hog cholera and swine plague, lung worms, rabies, tuberculosis and mange.

Among Cats—Rabies.

Among Fowls—Rabies and chicken cholera.

During the past year alone, one hundred and eight field investigations were conducted. These consisted of the examiantion of horses, cattle and sheep for mange and scabies, the investigation of reported outbreaks of rabies among farm animals, examinations of stallions reported to be affected with maladie du coit, the examination and testing with mallein, of horses suspected of having glanders, tuberculin tests of dairy herds, investigations of outbreaks of swine plague and hog cholera and inspections of public abattoirs, stock yards and unloading chutes, etc.

Every year about three thousand annual reports, on the work of the Board, have been published and distributed. Bulletins and circulars of information on tuberculosis, rabies (hydrophobia), hog cholera and swine plague have been issued and distributed to the agricultural and county papers of the state and to individuals directly interested. The Board's work has thus been brought to the attention of the people and the result has been an enormous increase in the demand for its services, a demand altogether out of proportion to the means at its disposal.

The Board is urged from all quarters to aid individuals and communities in solving the problems of ridding dairy herds of tuberculosis, of protecting the swine industry against the ravages of cholera and of securing the safety of all domestic animals, as well as human beings, against that most terrible of diseases, rabies. During the past year rabies has been reported from nearly every county of the state.

These conditions are not peculiar to Ohio; they exist, in more or less modified form, in all states and in all countries where the enforcement of effective live stock sanitary police measures is unknown, or where their introduction is of recent date.

Notable examples of what can be done toward ameliorating these conditions are furnished by some European countries and by a number of our own states. German cities and states have shown that rabies can be practically stamped out in the short space of a year. All that is required to bring about this condition is the enforcement of a law requiring all dogs that run at large to be securely muzzled. The bite of a mad dog being the chief means of transmitting this disease, opportunities for infection would be removed and the result would be evident.

Among our own states Pennsylvania furnishes an example of the grand work that can be accomplished toward the repression of tuberculosis in our dairies. The losses occasioned by this disease are almost incalculable and the danger to human beings, from the consumption of products from tubercular animals, is much greater than we are generally willing to admit.

Since sanitary regulations for the control of swine plague and hog cholera have been introduced with such marked success in the state of Minnesota, Ohio, whose swine industry is of far greater importance, cannot afford to remain inactive.

According to the latest available statistics the total value of the live stock of the state is estimated at over one hundred and twenty million dollars. The loss from diseases, most of which are of a preventable nature, reaches nearly the two million dollar mark. For the protection of our live stock industry against this unnecessary loss the state has placed at the disposal of its board of live stock commissioners not more than three thousand dollars per annum!

A statement of the sums appropriated by some of the other states will be of interest in this connection. The live stock sanitary board of Illinois has an annual appropriation of ten thousand dollars; Montana appropriates eighteen thousand dollars annually, for the same purpose; Minnesota, nineteen thousand dollars; New York, twenty thousand dollars; New Mexico, with a live stock valuation only one-twelfth as large as that of Ohio, expends thirty-five thousand dollars annually for its protection; Oklahoma, eight thousand dollars; Rhode Island, twenty thousand dollars; Texas, thirteen thousand dollars; Pennsylvania, fifty-seven thousand, five hundred dollars, and the Cattle Bureau of Massachusetts ninety-four thousand, two hundred and eighty-seven dollars.

As has been shown in another part of this report, our live stock industry suffers enormous losses from the unrestricted shipment of infected animals, or of healthy animals in infected railroad cars, from other states as well as from the uncontrolled use of infected stock yards and pens in our own state. Dangerous infectious and contagious diseases exist in every state of the Union as well as in all countries in which live stock is raised to any extent. The higher the live stock industry of any country is developed the greater is the number of diseases that endanger the health of domestic animals. This is a result of the conditions under which these animals are necessarily kept as well as a natural consequence of the increased traffic in animals that attends the development of the live stock industry of a state. Under such conditions the opportunities for infection are greatly increased. But notwithstanding the constantly multiplying dangers with which we are threatened from all sides, modern methods of sanitary police control have made it possible that a state can protect itself, effectively, against them.

Thus far the Board has been successful in preventing the introduction of splenetic or Southern cattle fever and in keeping in check the spread of scabies in sheep. The latter disease, however, on account of our present lack of shipping restrictions, is becoming more prevalent and is threatening to gain a firm foothold among our flocks. Without the early enforcement of proper restrictions or regulations for the shipment of Western horses into the state it is only a question of a short time when glanders will be as common in Ohio as it is in some of those states now. Without the early introduction of some system for the repression of tuberculosis in our dairies the time is not distant when such an undertaking would be staggering in its magnitude. Hog cholera and swine plague are generally prevalent over the state now and it is a question to what extent these diseases can be controlled with our present knowledge, but existing conditions can be improved and the sooner a beginning is made in this direction the better will be the results.

The work of the Board has now reached a stage in its development where, beyond slight improvements in the details of the execution of its regulations, no further advance is possible with its present means. On the contrary, since the execution of effective live stock sanitary regulations becomes more complicated and expensive as a country develops, it will require additional funds to keep the work of the Board even at its present stage of efficiency.

At present the Board employs one veterinarian whose duty it is to investigate outbreaks of dangerous infectious and contagious diseases in any or every of the eighty-eight counties of the state, conduct a pathological laboratory for the purpose of making diagnoses of diseases and for the examination of pathological material that is sent in by veterinarians from all over the state who desire to co-operate with the Board, conducting of experimental work, looking after the necessary correspondence, keeping office hours, etc. It is not an infrequent occurrence that the veterinarian's services are urgently needed in several places at the same time. It has occurred that the veterinarian had to carry on investigations at points near Cleveland and in Cincinnati and that his presence was necessary at both places, several times, during the same week. It was possible to arrange this, but not without the sacrifice of the time and money necessary to make several trips from Cleveland to Cincinnati, and return, and the absolute neglect of everything else.

An urgent need of the Board is the assistance of several additional veterinarians to carry on work under its direction, the assistance of a number of practicing veterinarians in various sections of the state to look after the details of executing certain work of a local character (this could be secured at a nominal cost), special inspectors at Cleveland and Cincinnati and at such other points as are used for unloading places for animals shipped in from other states, a sum of about one thousand dollars per annum to be used in special investigations of the infectious swine diseases, hog cholera and swine plague, and an ample fund for the payment of nominal compensations to the owners for live stock that has been ordered destroyed by the Board for the purpose of controlling the spread of dangerous infectious and contagious diseases.

The effects of the improvement of the sanitary condition of our flocks and herds would be felt not alone by those actually engaged in the live stock business, but the resulting reputation that we would gain abroad as producers of healthy live stock would be a wonderful stimulus to trade, while the improved quality of our animal food products would be nothing more than the citizens of any civilized state should expect to enjoy.

Since April 1, 1904, the date of your approval of the last special report on claims for animals destroyed by the Board for the prevention of the spread of dangerous infectious and contagious diseases among the live stock of the state, the following animals have been destroyed by order of the State Board of Live Stock Commissioners:

HORSES AFFECTED WITH GLANDERS.

No. and Sex of Horse.	Name and Residence of Owner.	Appraised Value.
1 Bay Gelding	Randolph & Co., Georgetown	$70 00
2 Bay Gelding	Randolph & Co., Georgetown	110 00
3 Dun Mare	Randolph & Co., Georgetown	65 00
4 Bay Gelding	John Pickerill, Georgetown	70 00
5 Gray Gelding	J. R. Pickerill, Georgetown	100 00
6 Gray Mare	J. R. Pickerill, Georgetown	125 00
7 Gray Gelding	J. R. Pickerill, Georgetown	85 00
8 Gray Gelding	W. N. Little, Lorain	252 50
9 Black Gelding	Chas. Van Wagnan, Lorain	150 00
10 Brown Gelding	Daniel Stevens, Macon	115 00
11 Bay Gelding	Daniel Stevens, Macon	110 00
12 Brown Gelding	Clarence Stevens, Macon	125 00
13 Bay Gelding	Vincent Robbins, Wilson, P. O.	50 00
14 Bay Gelding	George Washing, Piqua	145 00
15 Gray Gelding	Sam'l T. Gordon, Cheshire	150 00
16 Bay Gelding	Wm. Lathberry, Lena	130 00
17 Bay Gelding	Patterson Malon, Manchester P. O.	25 00
18 Black Mare	Sam'l N. Borden, Warsaw	105 00
19 Sorrel Mare	Sam'l N. Borden, Warsaw	70 00
20 Bay Mare	Sam'l N. Borden, Warsaw	50 00
21 Gray Gelding	Tom Andrews, Georgetown	85 00
22 Bay Gelding	Tom Andrews, Georgetown	40 00
	Total	$2,227 50

SWINE EXPOSED TO INFECTION BY RABIES.

No.	Name and Residence of Owner.	Appraised Value.
17	H. C. Steel, Belleville	$212 80
8	A. S. Lantz, Belleville	35 00
17	W. P. Hildebrand, Tiffin	121 50
9	D. L. Coppus, Fostoria	42 00
14	George Ferguson, Alpha	149 26
13	J. W. Brill, Alpha	143 35
	Total	$703 91

CATTLE INFECTED WITH TUBERCULOSIS.

No.	Name and Residence of Owner.	Appraised Value.
18	Andalusia Dairy Co., Salem	$900 00
21	John D. Thompson, Perry	670 00
1	Charles Cross, Perry	40 00
	Total	$1,610 00
	Total value of all animals destroyed	4,541 41

As required by law, the State Board of Live Stock Commissioners hereby reports for your favorable consideration, the claim of four thousand five hundred and forty-one dollars and forty-one cents ($4,541.41) as compensation for horses affected with glanders, swine exposed to rabies and dairy cows affected with incipient tuberculosis, destroyed by order of the Board.

Glanders is the most dangerous and fatal disease of the horse and, at the same time, it occurs in many other domestic animals and is not infrequently the cause of a horrible death in human beings.

For these reasons the control of the disease among horses, with a view to its ultimate extirpation, is a very important duty of the Board.

Although the direct cause of the disease is a specific germ, it is a well known fact that poor hygienic conditions are important factors in the development, as well as the spread, of glanders. Such conditions are naturally found among such owners of horses as can ill afford to lose them, when the destruction of animals, in the incipient stage of the disease, becomes necessary for the protection of the community in general.

The compulsory destruction of animals in such cases is a serious matter with these people, and, unless they can expect a reasonable compensation for their loss, the efficiency of the work of the Board will suffer, especially in cases where voluntary information from the public constitutes the basis on which investigations are made.

Similar arguments would apply with equal force where the occurrence of rabies in domestic animals is concerned.

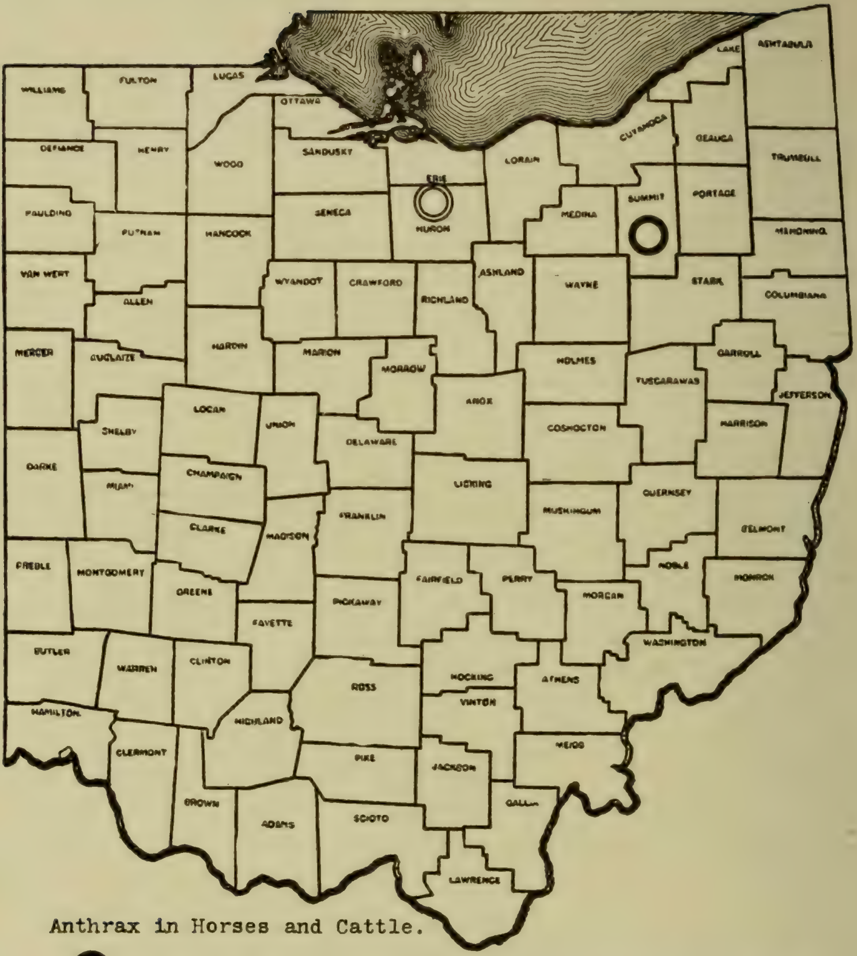
As to the cattle (dairy cows) that have been destroyed: It has been conclusively shown that bovine tuberculosis and tuberculosis or consumption of human beings are one and the same disease and that it is readily transmitted from the one to the other. Children and infants, whose diet is made up so largely of the cow's milk, are especially susceptible subjects. The argument for the suppression of this disease is, therefore, not based on economic grounds alone, but on the belief that the preservation of human life and health is a paramount duty of the state.

It may therefore suffice to state that, since no existing laws of the state can compel the owner of a suspected tuberculous dairy to have his herd tested and to sacrifice all animals that show indications of being affected with this plague, every reasonable inducement should be offered to have this done voluntarily.

On the following pages will be found general outlines of the work accomplished by the Board toward the control and extirpation of the various dangerous contagious and infectious diseases of domestic animals. For the more important diseases maps have been prepared to show the extent of their prevalence as far as they have come under the observation, or to the knowledge, of the Board. For the sake of convenience in referring to them, they have been arranged alphabetically, irrespective of their importance or of their occurrence in different species of animals.

ANTHRAX.

IN HORSES AND CATTLE.



Anthrax in Horses and Cattle.

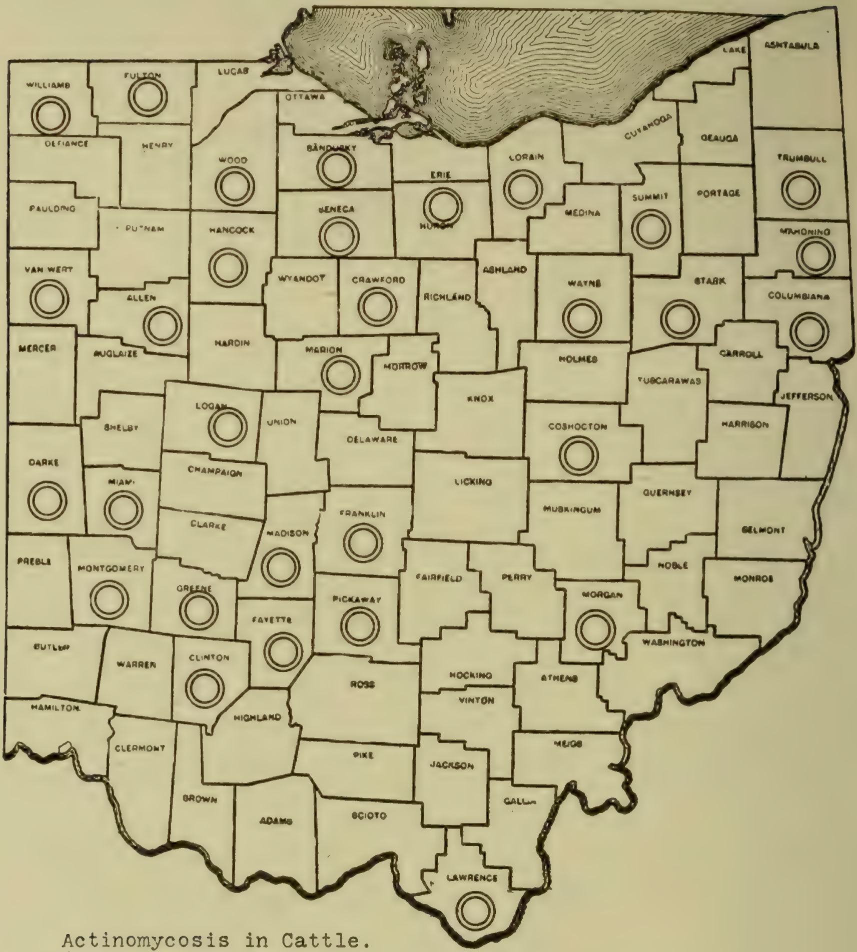
○ County in which the disease was discovered by the Board in 1903.

◎ County from which the disease was reported in 1905.

Several reports of outbreaks of anthrax were received during the year, but investigations by the veterinarian proved all of them to be unfounded. For more than two years not a single case of anthrax has come under the observation of the Board. The disease is one of the most dangerous known, affecting all warm blooded animals as well as human beings.

In some states, notably Arkansas, Louisiana, Mississippi and Texas, the losses from this disease have reached millions of dollars. Horses, cattle and sheep are most frequently affected. In this state the disease was discovered near Hudson, in Summit county, in August, 1903, when one horse and six head of cattle died from its effects.

ACTINOMYCOSIS. (*Big Jaw, Lump Jaw.*)



Actinomycosis in Cattle.
(Lump Jaw,Big Jaw).
Map showing counties from which the disease has been reported during the past year.

As shown by the above map, actinomycosis (big jaw, lump jaw) occurs in almost all parts of the state, although to a limited extent only. The fact that an effective remedy has been found to treat this disease, in its early stages, makes it of less importance, from a "sanitary police" point of view, than formerly. Actinomycosis occurs in human beings, but the danger of direct infection from affected animals, if it occurs at all, must be very slight.

The cause of the disease is a vegetable parasite related to the bacteria, *Actinomycis bovis,* which grows on various grains and grasses, but notably on the heads of barley. With the peculiarly constructed awns of this plant, which work their way into the tissues of the animal, sometimes through previously existing wounds, this parasite gains a foothold and, by further development as a true parasite, produces the tumors characteristic of the disease.

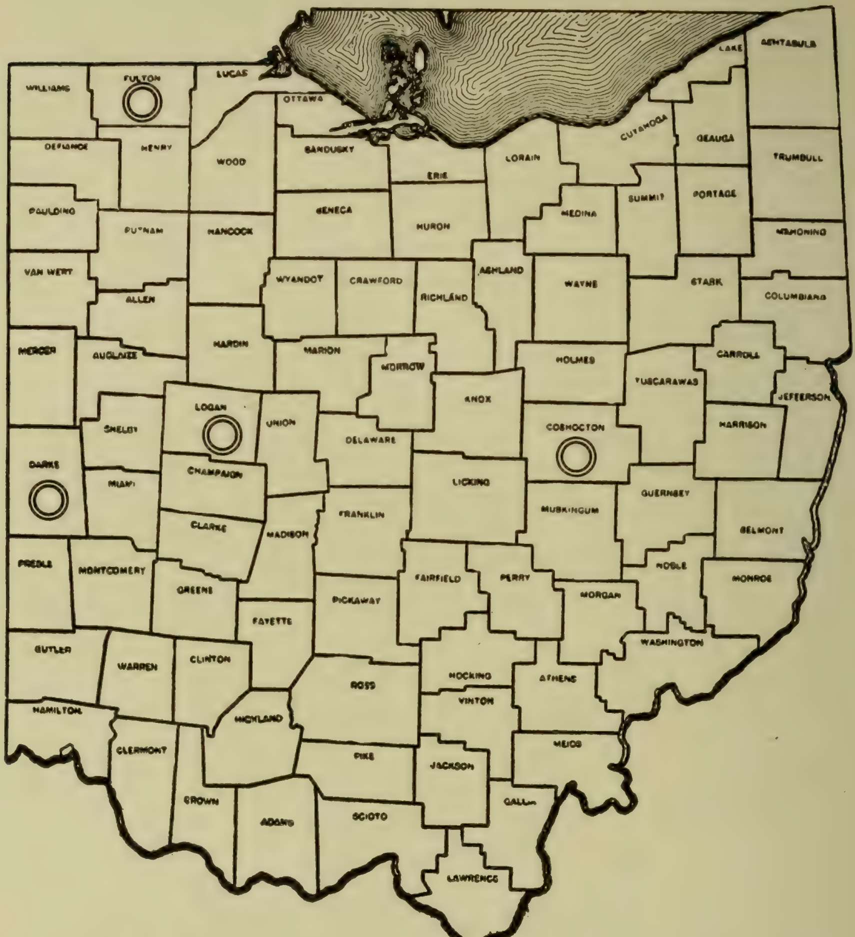
Animals affected with lump jaw should be put under the care of a veterinarian. As far as the use of meat from affected animals, with local forms of the disease, is concerned, although it cannot be said that any great danger attends its use as food, the practice is attended with the same objections as is the use of meat from animals suffering from any other disease, and should therefore not be encouraged.

When the disease is limited in extent, and strictly local, the carcasses of animals are considered fit for human food, provided no emaciation exists and provided that the affected parts (the entire head, when the jaw is the seat of the disease) be removed under the direction of a competent meat inspector.

Requests are sometimes received from local boards of health to examine animals that are reported to be affected with actinomycosis. Whenever possible, these requests are complied with, but in most cases the parties making the requests are advised to obtain the services of local veterinarians, the time of the Veterinarian of the Board being fully occupied with matters pertaining to the more dangerous, infectious and contagious diseases.

COITAL EXANTHEMA. (*Venerial Disease.*)

IN HORSES.

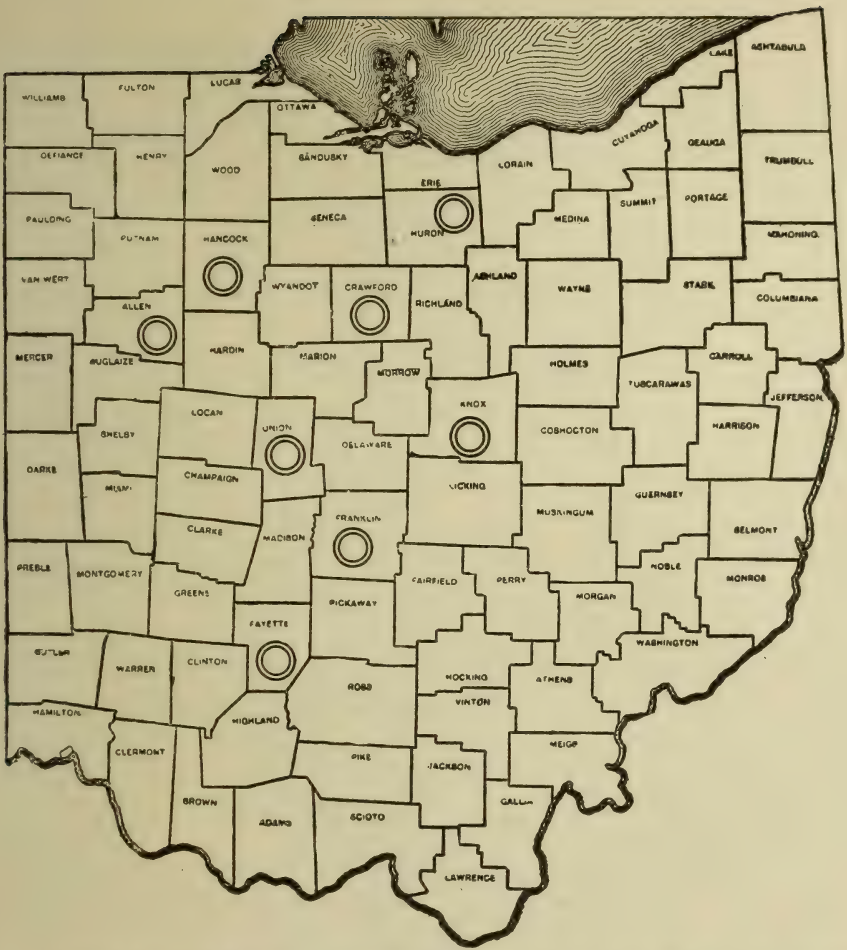


Coital Exanthema in Horses: Map showing counties from which the disease was reported during the past year.

As stated in previous reports, the appearance of coital exanthema in this state is of special interest from the fact that another disease similar in its first symptoms, but far more dangerous, and which may easily be mistaken for the disease under discussion, has appeared among the breeding horses of some of our Western states, and has, in fact, been reported in one state bordering on Ohio. The disease referred to is Maladie du coit (Fr.), also called equine syphilis, although it has nothing in common with syphilis in man. It is a disease, however, that should be equally dreaded. Nothing but strict sanitary police regulations, and laws under which they can be made and enforced, will prevent the ultimate introduction of this disease into Ohio. The expense necessary to enforce such regulations need not be excessive.

SOCALLED FOOT ROT.

IN SHEEP.



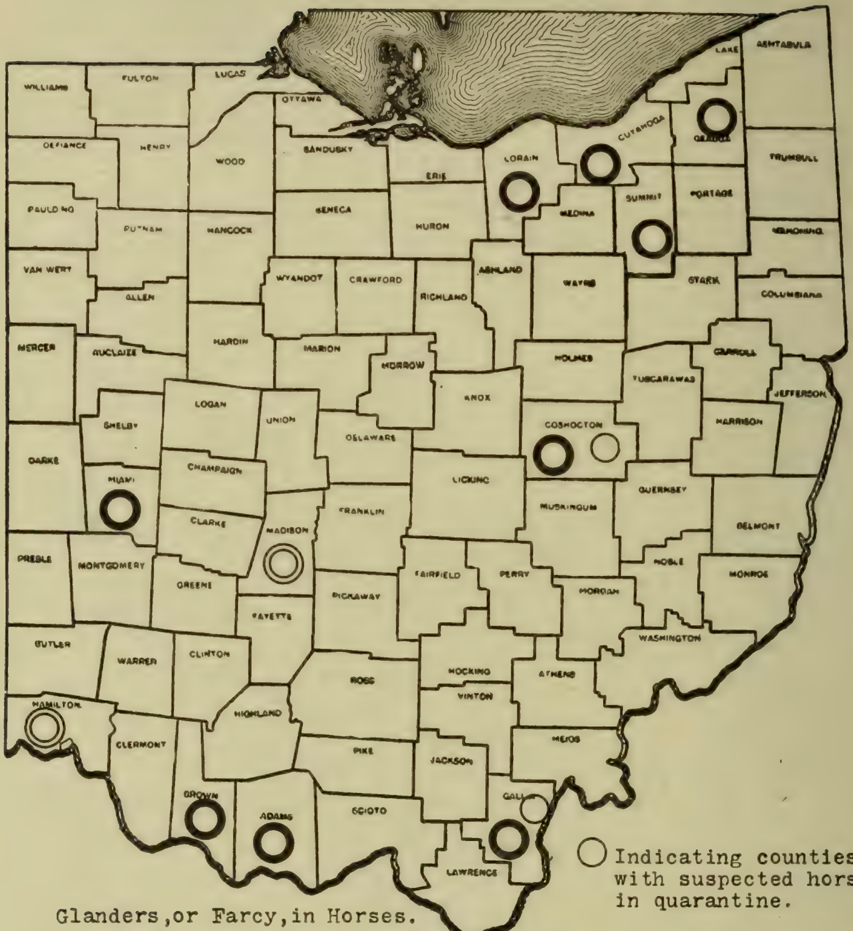
Foot Rot in Sheep: Map showing counties from which the disease was reported during the past year.

So-called foot rot in sheep was reported from a numberof localities, but it was impossible to make investigations of any of these reports.

The accompanying map shows the counties from which the disease was reported.

GLANDERS OR FARCY.

IN HORSES.



○ Indicating counties with suspected horses in quarantine.

Glanders, or Farcy, in Horses.

◯ Indicating counties in which glanders has been discovered and investigated by the Board during the past year.

◎ Cases of glanders reported and disposed of by local veterinarians.

As in previous years, investigations of reported cases of glanders (or farcy) in horses and mules have occupied more of the time of the Veterinarian and funds of the Board than any other disease. During the year about one hundred horses and mules have been examined for glanders. With a few exceptions all of these animals were tested with mallein, which was furnished by the Bureau of Animal Industry of the United States Department of Agriculture. In two instances only were animals condemned without a mallein test. During the period from November

8, 1904, to November 7, 1905, twenty-one glandered horses were destroyed by the Board as compared with thirty horses for the preceding year and forty horses for the year 1902 to 1903.

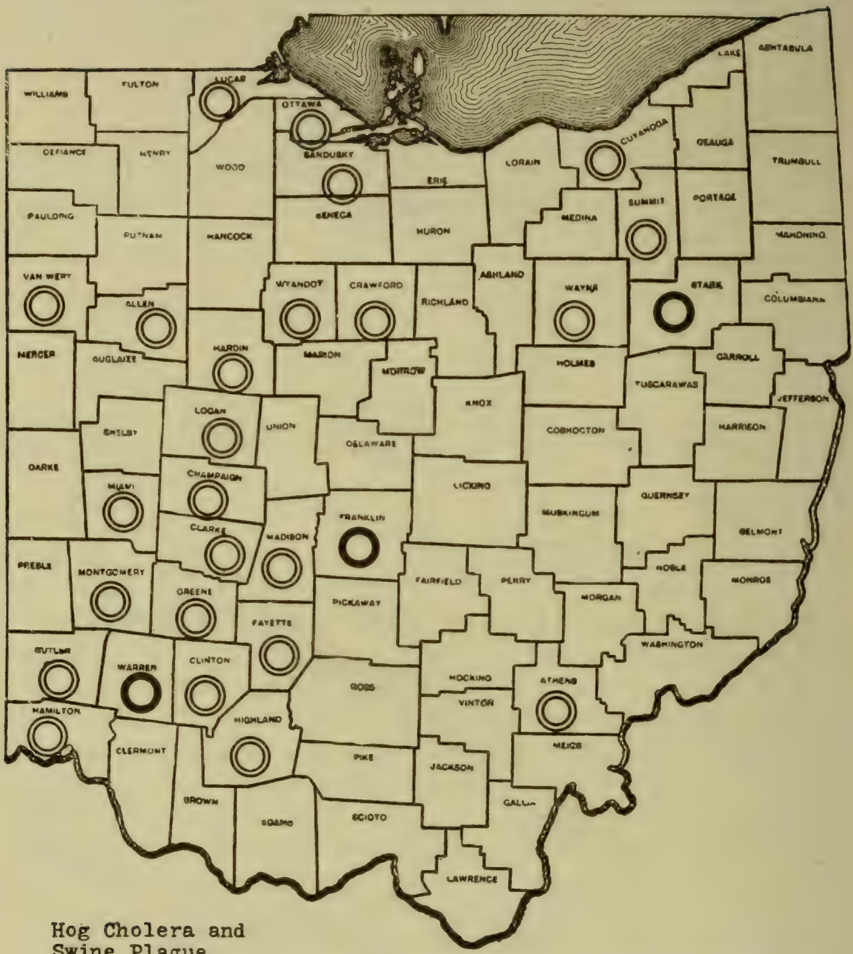
The disease was distributed over the following counties:

County.	Number of Horses Affected.	Appraised Value.
Adams	Two	$75 00
Brown	Six (five horses appraised)	475 00
Coshocton	Three	225 00
Cuyahoga	One (not appraised)	......
Gallia	One	150 00
Geauga	One (not appraised)	......
Hamilton	One (not appraised)	......
Madison	One (not appraised)	......
Miami	Two	275 00
Lorain	Two	402 50
	Total twenty-one	$1,602 50

Since 1902 the disease has also existed in the following counties: Columbiana, Erie, Fulton, Huron, Trumbull and Putnam.

Where outbreaks of glanders are investigated by the Board, all animals found to be infected are ordered destroyed and their carcasses burned or buried (as circumstances may require) at once. Where it is deemed necessary, all exposed animals are subjected to the mallein test. All animals that give a distinct and typical reaction to this test are regarded as affected with the disease, whether they show clinical symptoms of glanders or otherwise, and must be destroyed. Premises upon which glandered horses are discovered are immediately quarantined and quarantine restrictions are continued in force until all affected animals have been destroyed and disposed of according to the regulations of the Board and the premises thoroughly disinfected under the direction of the Veterinarian.

HOG CHOLERA AND SWINE PLAGUE.



Hog Cholera and Swine Plague.

◎ Indicating counties from which disease was reported.

○ Indicating counties in which Board made investigations and took measures to check the disease.

These two diseases, affecting animals that are the basis of an industry representing millions of dollars, and suffering annual losses of over half a million dollars due, chiefly, to the ravages of these diseases, are not receiving, and cannot receive, the attention that they should be given by the State Board of Live Stock Commissioners until provisions are made for carrying on the work in an effective manner. The control of hog cholera and swine plague requires large funds and, with these, intelligent and willing co-operation on the part of the owners of swine. At the present time there is manifested a tendency, on the part of many owners, to suppress information regarding the appearance of these diseases in their herds, rather than to aid the Board in locating them. The explanation of this is apparently the fear entertained by the owners of affected animals that any measures that are enforced with a view to controlling the disease will necessarily result in a pecuniary loss to them. While this is true in a certain sense, in a few cases, it is certainly not so when a broader view is taken of the subject.

After either of these diseases has affected an animal, that animal, in all probability, will be a total loss to the owner. In most cases the diseases are incurable, and the meat of a diseased animal ought not to be considered as fit for human food.

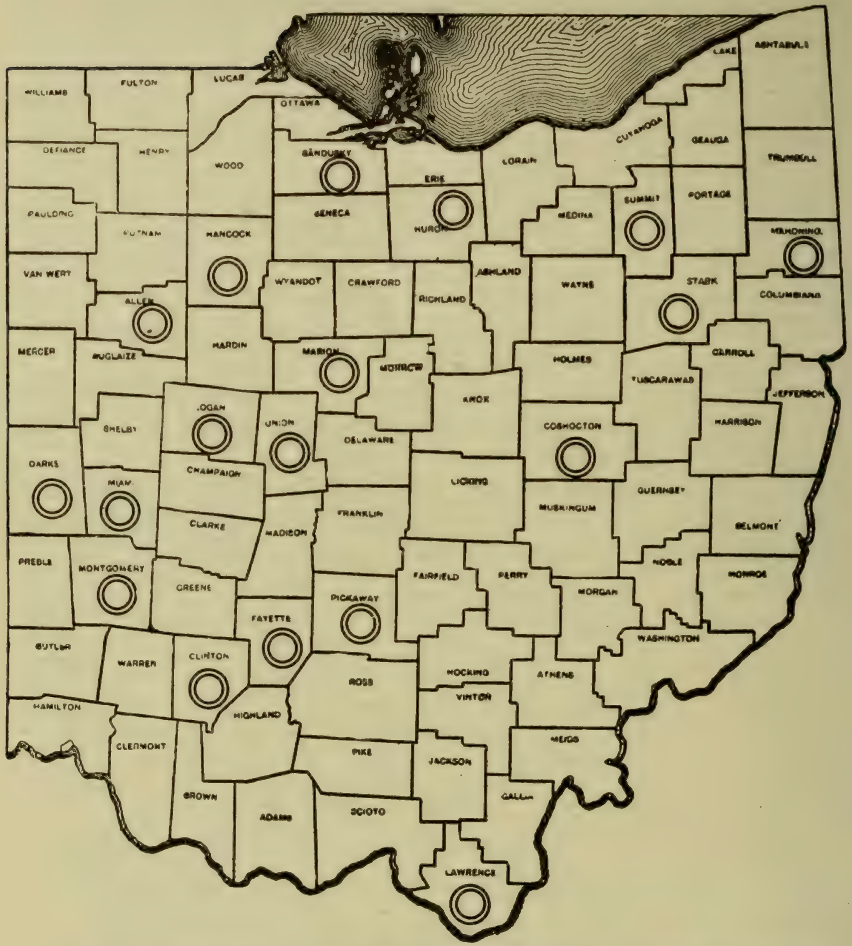
The Board is endeavoring, as in the past, to aid the swine breeders and feeders of the state in controlling these diseases by inviting the owners of infected herds to report outbreaks as soon as they become known and receive in return advice and assistance, where the latter can be given, that will lead to the saving of at least part of the herd, and that will tend to check the progress of the disease among those of their neighbors.

It has been shown that the introduction of certain sanitary measures will do more toward saving a large part of an infected herd of swine than any medicine yet discovered.

A bulletin on the prevention of swine plague and hog cholera was issued by the Board some time ago and copies of this are sent to all persons applying for the same, or who request information that it contains.

INFECTIOUS KERATITIS. (*Sore Eyes.*)

IN CATTLE.



Infectious Keratitis of Cattle: **Map showing counties from which the disease has been reported during the past year.**

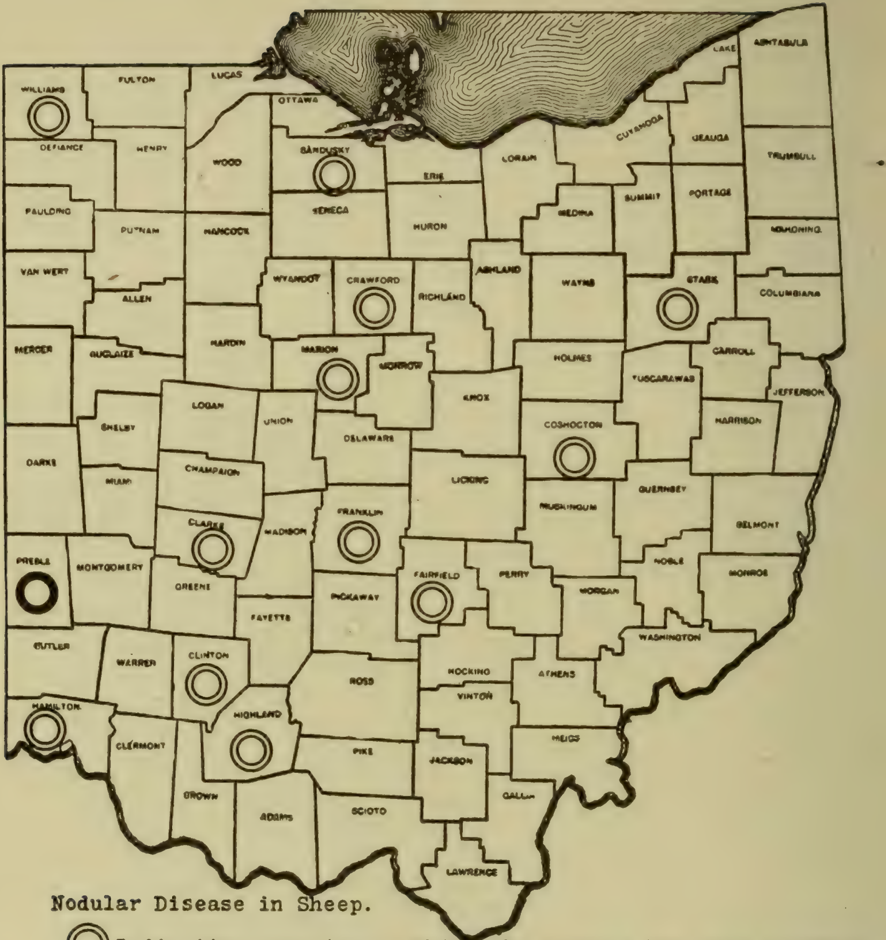
During the warm season, especially in the latter part of summer, this infectious eye disease is frequently reported. It affects the eyes of cattle and usually remains strictly localized. The course of the disease is short and usually terminates in perfect recovery within a few weeks. In a small per cent. of cases there may be permanent impairment of sight, or even complete loss of one or both eyes.

On the whole the disease is not considered a dangerous one, the loss occurring from it, as a rule, being confined to slight and temporary loss of flesh by the afflicted animal.

Owners reporting the existence of the disease in their herds are advised to isolate the affected animals, and to treat their eyes with an antiseptic wash. No further regulations for the control of this disease are advised by the Board.

NODULAR DISEASE.

IN SHEEP.



Nodular Disease in Sheep.

○ Indicating counties in which the disease has been reported to exist.

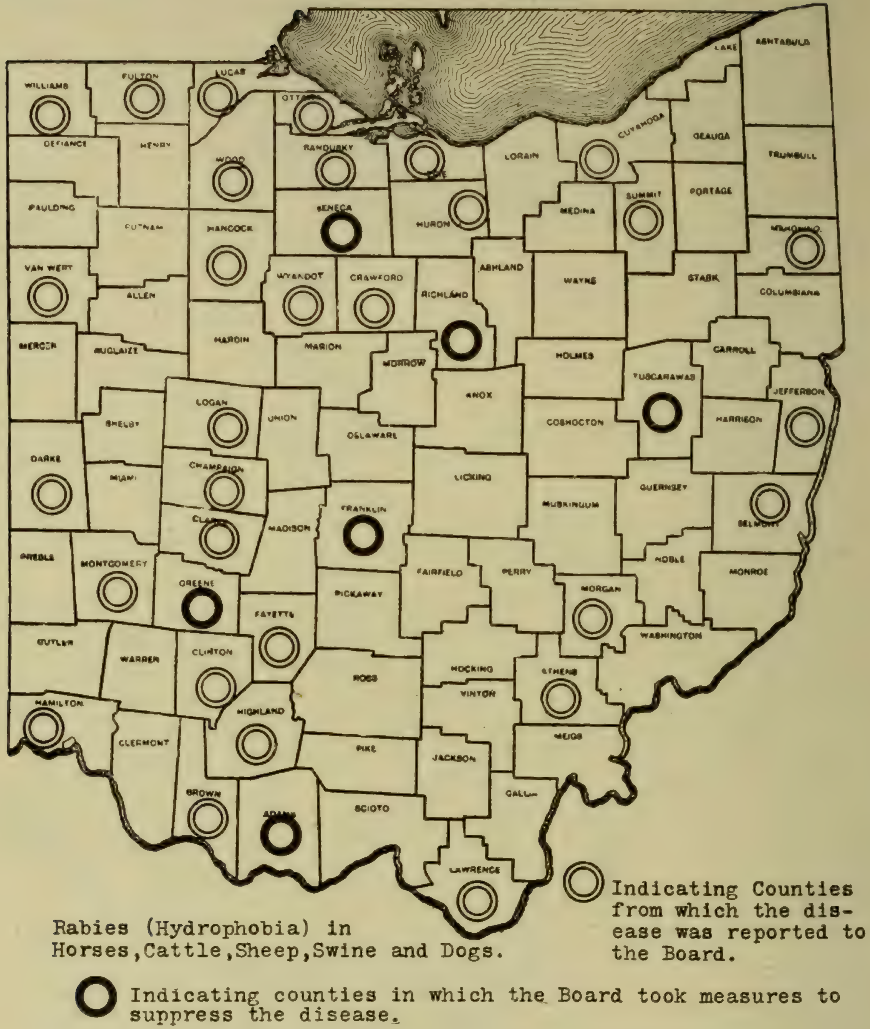
● Indicating counties in which the Board made special investigations of the disease.

Not many years ago nodular disease was unknown in Ohio. It is now reported more frequently every year and is becoming very destructive to sheep in several sections of the state. The disease is caused by an intestinal parasitic worm (Oesophagostoma Columbiana), which causes the appearance of various sized nodules (hence the name) in the walls of the large and small intestines of infected animals. Young pregnant ewes seem to suffer more than other sheep.

The disease frequently terminates in death, and in other cases it permanently affects the general health of the animal. Once introduced on a farm, it is difficult to exterminate. One reason for this is that the life history of the parasite, which is the cause of the disease, is not thoroughly understood.

The best preventive is the observation of care in the purchase of new stock. Farms free from the disease should not be stocked with sheep from infected areas.

RABIES. (*Hydrophobia.*)



Rabies (Hydrophobia) in Horses, Cattle, Sheep, Swine and Dogs.

◎ Indicating Counties from which the disease was reported to the Board.

◯ Indicating counties in which the Board took measures to suppress the disease.

Rabies occurs in all our domestic animals, as well as in man. The disease has become quite prevalent in Ohio and during the past year probably no county in the state has been entirely free from it. Although many of the reports of outbreaks that are received from the laity are based upon imaginary observations, the disease cannot be mistaken for anything else by one familiar with its symptoms.

The accompanying map shows the distribution of the disease, by counties, as investigated by the Board and as reported by veterinarians, for the past year.

The failure of local authorities in enforcing proper precautionary measures, and the absence of a state law authorizing the State Board of

Live Stock Commissioners to take up this matter, are responsible for this condition. There is absolutely no excuse for the existence of rabies to any extent, in a civilized country. A law requiring the muzzling of dogs in localities where the disease makes its appearance, especially in cities, would, within one year of its enforcement, practically eradicate the disease from the state. No other sanitary measure is based on better principles or supported by higher authorities.

In nearly all of the cases reported to the Board, special investigations were unnecessary, the affected animals having been killed and disposed of before the reports were received. There were, however, some exceptions to this rule. The most important of these were outbreaks of the disease in Seneca, Richland and Greene counties. A large number of horses, cattle, sheep and swine were affected. In several instances it became necessary to order the destruction of infected and exposed swine.

SCABIES. (*Scab, Mange, Itch.*)

IN HORSES, CATTLE AND SHEEP.

Scabies is a most troublesome skin disease, affecting all domestic animals and man.. Its cause is a small parasite, the itch mite, which is related to the spiders. There are many species, and almost an innumerable variety of these mites, each of which is the cause of a particular kind of itch, or scab.

Itch mites are grouped into three genera, the species of each genus having habits differing considerably from those of the other groups. These are (1) the Sarcoptes, (2) the Psoroptes, (3) the Chorioptes. Nearly every domestic animal is subject to the attacks of a species from each of these groups, consequently to several kinds of scab. Nearly all of the itch mites of our domestic animals will affect man, producing slight, but only temporary, attacks of the same disease. The Sarcoptes, however, may become very serious. The latter, with the Psoroptes, are the more important of the three groups. Figures *1,a and 1,b represent the male and female of Psoroptes communis, the cause of scab in sheep. A variety of this mite, Psoroptes communis, *var. bovis,* is the cause of the common cattle itch. Figures *2,a and 2,b represent the male and female Sarcoptes scabiei, distinct varieties of which affect the horse, sheep, goat, dog, cat, pig and man.

The Psoroptes are the larger mites, as shown by the relative sizes of the figures which are magnified fifty diameters. A keen eye can detect the Psoroptes as minute specks, but the Sarcoptes are microscopic.

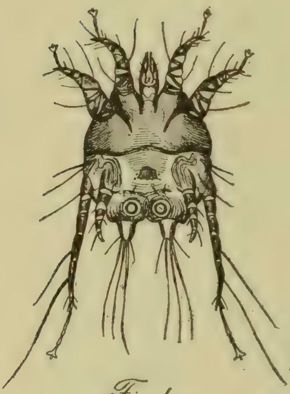


Fig. 1,a.

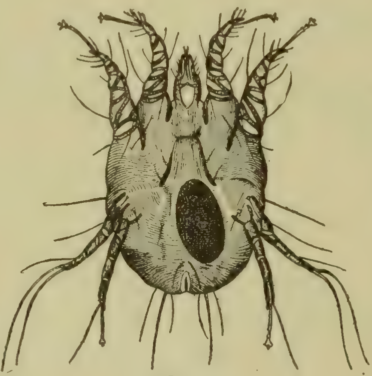


Fig. 1,b.

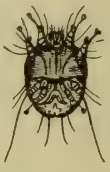


Fig. 2,a.

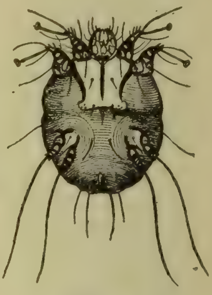


Fig. 2,b.

The Psoroptes live on the surface of the skin, attaching themselves to the hair, wool or projecting scales and live by sucking the blood and lymph from the skin of the animal. The Sarcoptes live in tunnels or burrows which they make under the skin. These peculiar habits of the mites explain why some forms of mange are easily curable, and why others resist the application of the most heroic remedies.

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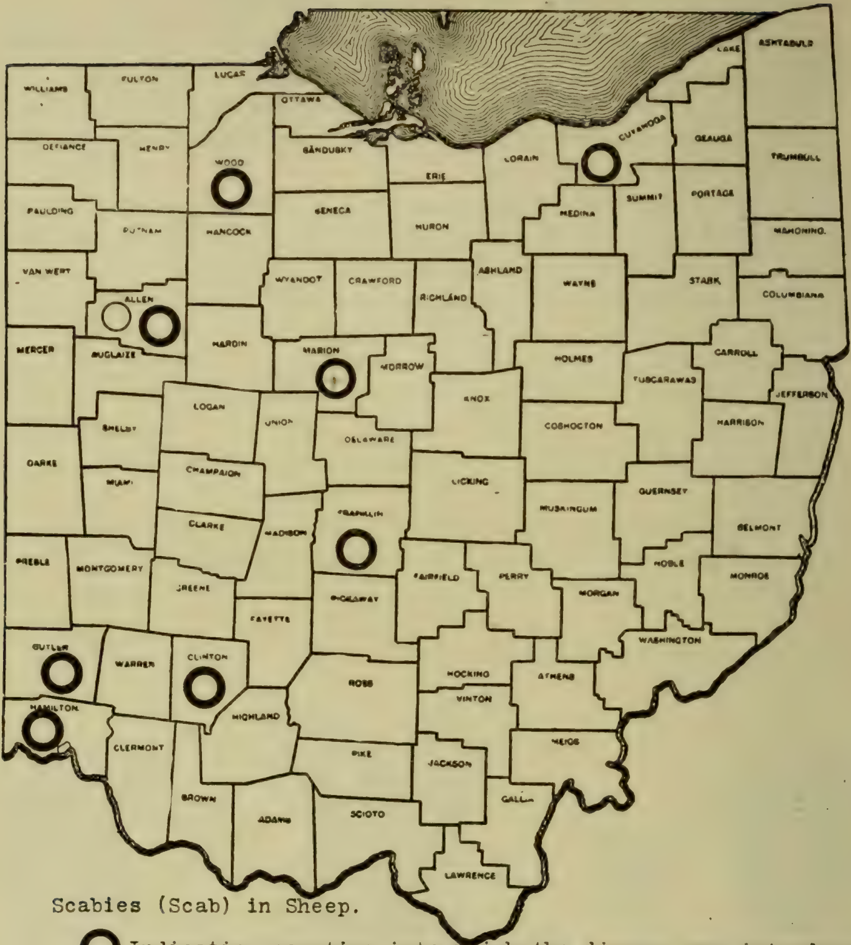
*Neumann.

The common sheep and cattle scab belong to the first class. Dipping is the effective treatment. Two dippings are necessary to produce a cure, the first dipping kills all the mites, but does not destroy their eggs which are always present in large numbers. After a few days the eggs hatch, and the young mites are destroyed by a second dipping that is given a week or ten days after the first.

The treatment of Sarcoptic mange consists in the persistent application, at short intervals, of various parasiticides, and proper dietetic treatment. Some cases are practically incurable.

SCABIES. (*Scab.*)

IN SHEEP.



Scabies (Scab) in Sheep.

◯ Indicating counties into which the disease was introduced by shipments of Western sheep during the past year.

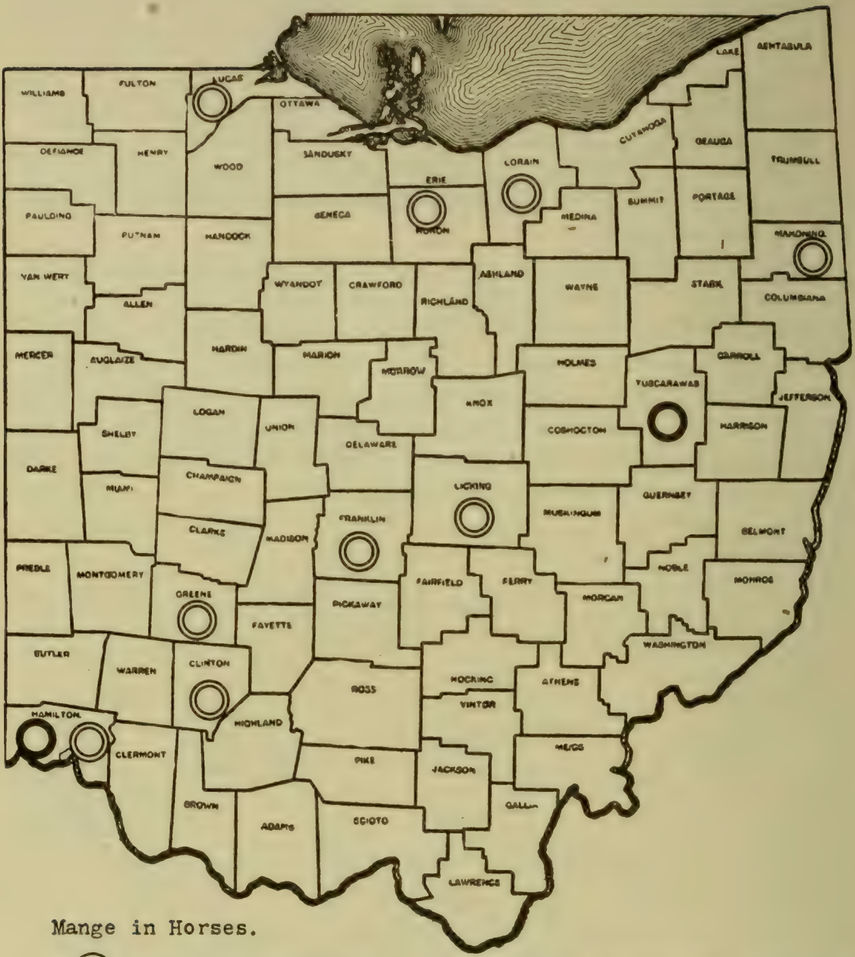
○ Infected Western sheep in quarantine.

In the control of sheep scab the work of the Board has hitherto been very successful. As far as native sheep are concerned the state is practically free from this disease. When the disease does occur it is nearly always traceable to shipments that have been made from some of the extensively infected Western states. Until the present year the Board has been able to investigate each and every outbreak that was reported from any point within the state, and take immediate and effective measures to check its progress to other flocks. During the past year, however, reported outbreaks have been so numerous that the funds at the command of the Board have been inadequate to defray the expense of thorough investigations in all cases. The disease was reported from eight counties, viz.: Allen, Butler, Clinton, Cuyahoga, Franklin, Hamilton, Marion and Wood. As far as known, Allen county alone is infected at the present time, but it is impossible to state just to what extent the disease has spread among the flocks.

It is hoped that the Board will be placed in a position to take up the work of exterminating this disease before any large number of additional flocks become affected.

During the year, two thousand, seven hundred and seventy-nine sheep affected with scab were located by the Board. This is an unfavorable showing when compared with one thousand and fifty-one sheep for the preceding year. With proper sanitary police regulations it would be possible to keep the state absolutely free from this disease. On the other hand, without such regulations, the sheep industry will soon cease to be a profitable business, especially in those sections of the state where the feeding of Western lambs is carried on extensively.

MANGE IN HORSES. (*Sarcoptic Mange.*)



Mange in Horses.

◎ Indicating counties from which the disease was reported by local veterinarians.

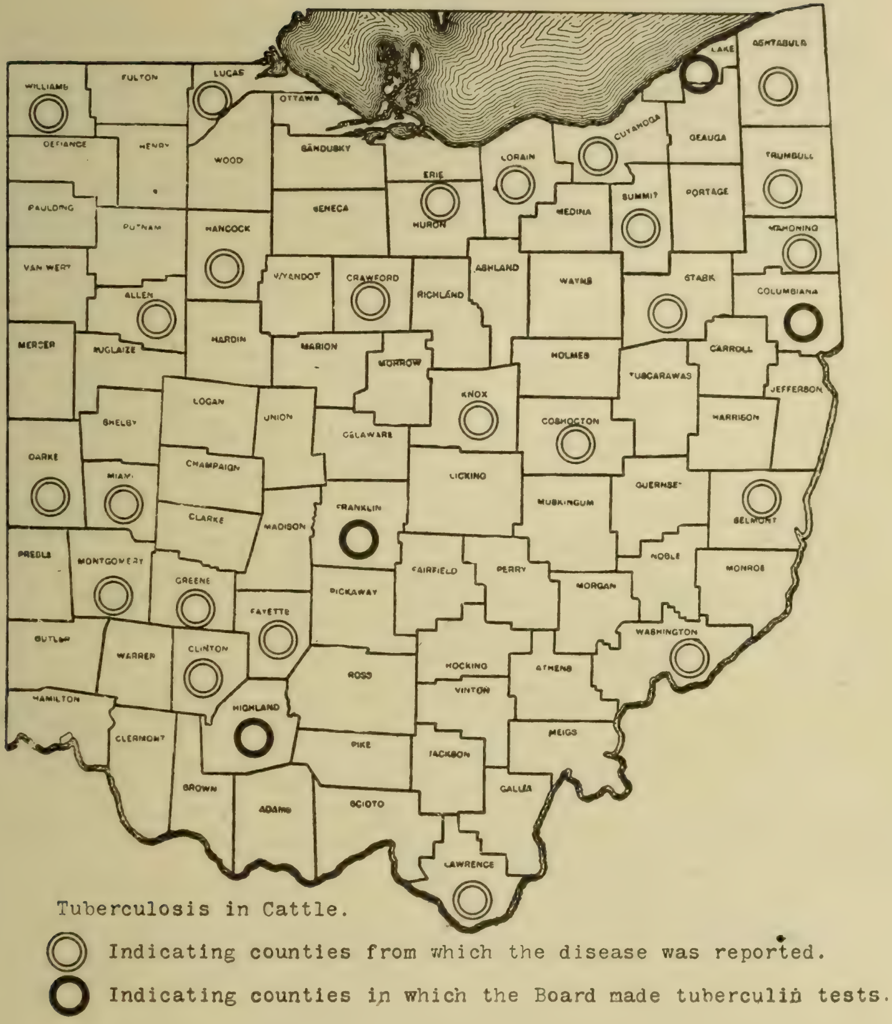
○ Indicating counties in which the disease was located by the Board.

Sarcoptic mange in horses was first observed by the Board in June, 1904, when a number of affected horses were quarantined on farms near Gilmore, Tuscarawas county. The Board was successful in eradicating the disease at that time, but it has been impossible to investigate outbreaks that have been reported during the past year. As the accompanying map indicates, mange in horses has been reported from at least nine counties. Like scab in sheep and glanders in horses, mange owes its prevalence to the absence of adequate restrictions on the shipment of diseased animals from other states.

As soon as the much needed funds are provided the Board will be prepared to take immediate and effective measures toward ridding the state of this disease and preventing its re-introduction from infected districts outside of the state.

TUBERCULOSIS.

IN CATTLE.



Tuberculosis in Cattle.

◎ Indicating counties from which the disease was reported.

○ Indicating counties in which the Board made tuberculin tests.

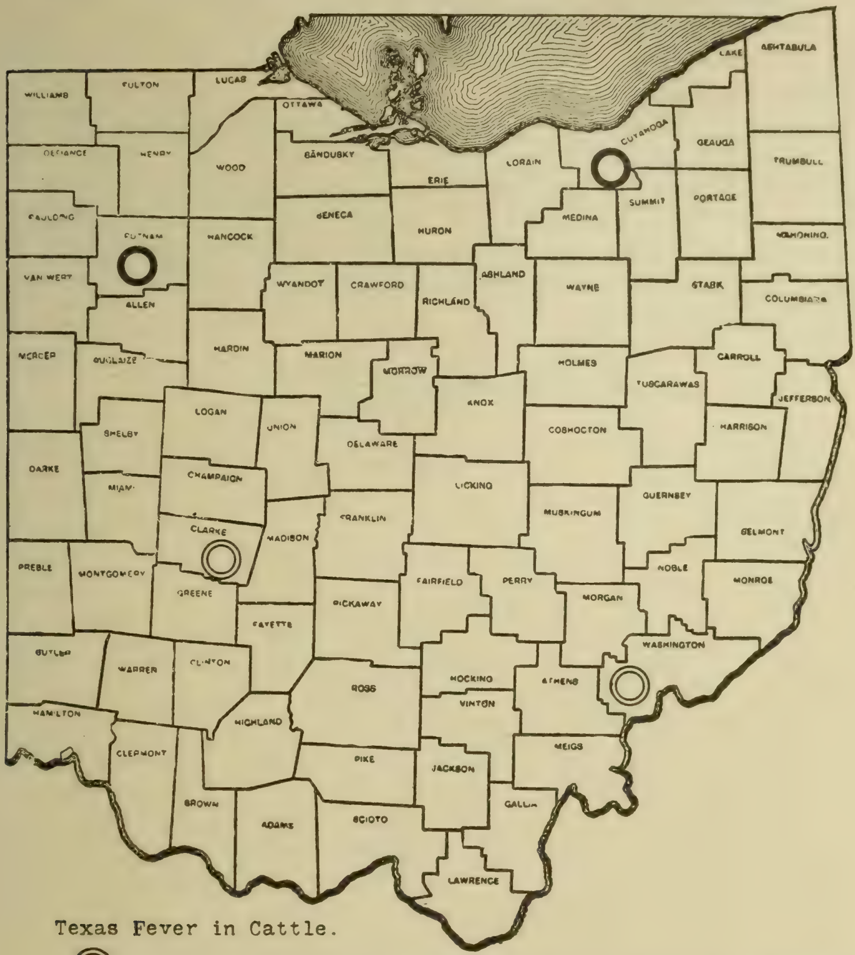
The work with tuberculosis has been along the same lines that were followed in previous years. Whenever requests were received dairy herds were tested with tuberculin and the owners were instructed as to the best methods of keeping their herds free from the disease in future.

Although requests of this kind were rather numerous, only a comparatively few herds were actually visited and examined. The reason for this was that in most cases the owners were unwilling to comply with the conditions imposed by the Board, viz.: the destruction of all affected animals, *or* the destruction of those in an advanced stage of the disease, permanent quarantine of those less affected, and sterilization of the milk from the quarantined animals, before the milk or its products should be offered for sale.

The reluctance of some owners to sacrifice their cattle, rather than to send them to market and realize some return for them, regardless of the injury to the unsuspecting buyer, will be an insurmountable obstacle to the successful control of tuberculosis, until provisions are made by the state to bear at least a part of the burden.

Herds were tested in Columbiana, Franklin, Highland and Lake counties. Forty cows, affected with the disease, were destroyed by the Board.

SOUTHERN CATTLE FEVER. (*Texas or Splenetic Fever.*)



Texas Fever in Cattle.

◎ Indicating counties from which the disease was reported.
○ Indicating counties in which the Board made investigations and located the disease.

The regulations of the Board require that all persons, companies, etc., shipping Southern cattle, or causing them to be shipped into the state, shall first obtain a permit from the State Board of Live Stock Commissioners, which must show that the pens or yards and unloading chutes that are to be used for these cattle have been inspected by the State Veterinarian and found to conform with the requirements of these regulations.

Cattle coming from south of the national quarantine line for Southern cattle fever may be unloaded at such places for the purpose of immediate slaughter only. Shipments for any other purpose are prohibited. These regulations have proved effective in every sense of the word.

The disease was reported from four counties. In Cuyahoga County one cow was lost as a result of carelessness on the part of an abattoir company in securing the gates to the quarantine pens, as required by the regulations of the Board. A native cow got into the pens unobserved, became infested with Southern cattle ticks and contracted Texas fever. In Putnam County three deaths occurred in a herd of steers that had been shipped in a tick-infested car from a Western state. In Washington County several buffaloes, belonging to a menagerie, were infected in a similar way. A report of the appearance of the disease in Greene County proved to be unfounded.

FINANCIAL REPORT OF THE STATE BOARD OF LIVE STOCK COMMISSIONERS FOR THE YEAR BEGINNING NOVEMBER 7, 1904, AND ENDING NOVEMBER 8, 1905.

To balance of appropriation by the General Assembly for the year ending February 15, 1905	$550 38	
To appropriation by the General Assembly for the year ending February 15, 1906	3,000 00	
By expenses of officers and members of the Board		$5 05
By salaries		1,800 00
By expenses of State Veterinarian		491 01
By general expenses		427 28
By balance of appropriation unexpended		827 04
Total	$3,550 38	$3,550 38

The State Board of Live Stock Commissioners,

W. W. Miller,
Secretary,

Paul Fischer,
Veterinarian.

[APPENDIX A.]

LAWS RELATING TO LIVE STOCK AND THE BOARD OF LIVE STOCK COMMISSIONERS, ITS DUTIES, ETC.

Revised Statutes of Ohio.

Sec. 4210. [**What cattle infected with disease shall not be brought into state.**] No person shall bring into the state of Ohio any cattle infected with the disease commonly known as the "Texas or Spanish fever," or pleuro-pneumonia, rinderpest, or other contagious diseases or any cattle liable to impart such fever or disease to other cattle; but this section shall not affect common carriers who are not the owners of cattle. Whoever violates the provisions of this section shall be liable to any person injured by bringing such cattle into the state in the amount of any loss occasioned thereby, in addition to other penalties provided by law.

(For importing cattle infected with Spanish fever see Sec. 7003, p. 45.)

Sec. 4211. [**Presumptions in actions to recover damages for infection.**] Whenever any Texas or Cherokee cattle, liable to impart disease, are brought into the State, and any such disease as Texas or Spanish fever makes its appearance within sixty days, and infects other cattle that have been on the same highway, common or pasture ground traveled over by such Texas or Cherokee cattle with such disease, such fact shall be deemed and taken in action to recover damages as prima facie evidence that such Texas or Cherokee cattle were infected with the disease known as the "Texas or Spanish fever," and that they imparted such disease; and the owner of such Texas or Cherokee cattle at the time they were brought into the state, and the owner of such cattle at the time the disease makes its appearance, shall be jointly and severally liable for any damages resulting from such disease.

Sec. 4211-6. [**Transportation of cholera-infected hogs.**] From and after the passage of this act, it shall be unlawful for any person or persons owning or having charge of any hog or hogs infected with cholera to transport the same within the borders of this state.

Sec. 4211-7. [**Liability of violator.**] Any person or persons violating the provisions of this act shall be liable for all damages resulting from the introduction of such disease thereby, to be recovered by any person so damaged, and shall also be deemed guilty of a misdemeanor and on conviction thereof shall be fined in any sum not exceeding five hundred dollars or be imprisoned in the jail of the county not exceeding six months, or both.

Sec. 4211-8. [**Common carriers or employes not affected, etc.**] This act shall not be construed so as to affect common carriers or their employes and shall take effect and be in force from and after its passage.

Sec. 4211-9. [**Board of Live Stock Commissioners.**] The Ohio state board of agriculture shall be and is hereby constituted the board of live stock commissioners for the promotion and protection of the live stock interests of the state and the prevention of the spread of infectious and contagious diseases among domestic animals and the extermination of the same; and to co-operate with the Bureau of Animal Industry of the United States Department of Agriculture, in the suppression and extirpation of contagious and infectious diseases among domestic animals. The board may elect such officers as it may deem necessary, and shall have powers in its organization and work to prescribe such rules and establish such regulations, not in conflict with law, as it may deem necessary, to secure strict quarantine and otherwise prevent the spread of infectious and contagious diseases among live stock and extirpate the same so far as it may be able to do so.

Sec. 4211-10. [**Duty as to extirpating diseases.**] The board of commissioners are authorized to use all proper means to prevent the spread of dangerous and fatal diseases among domestic animals, and to provide for the extirpation of such diseases; and in the event of any such contagious or infections disease breaking out in this state, it shall be the duty of all persons owning or having in charge animals infected with the same, to immediately notify said board of commissioners, or some member thereof, of the existence of such disease, and thereupon it shall be the duty of said board immediately to cause proper examination thereof to be made by a competent veterinarian; and if said disease shall be found to be a dangerously contagious or infectious malady, the board shall order the diseased animals, and such as have been exposed to the contagion, to be strictly quarantined in charge of such person as the board, or an authorized member thereof, shall designate, and to order any premises or farms where such disease exists, or has recently existed, to be put in quarantine so that no domestic animal subject to such disease be removed from or brought to, the premises or places so quarantined; and the board shall prescribe such regulations as they may deem necessary to prevent the contagion from being communicated in any way from the premises so quarantined.

Sec. 4211-11. [**Bodies of dead animals.**] The bodies of all dead animals shall be buried or burned by the owners thereof, as provided by law. See Sec. 6923*a*, page 45.

Sec. 4211-12. [**An act to suppress dangerously contagious diseases of animals; expenses of quarantining such animals; duty of sheriffs and constables.**] That any person having in his possession or under his care, any animal which he knows, or has reason to believe, is affected with a dangerously contagious or infectious disease, and does not, without unnecessary delay, make known the same to said board, or to some member thereof, or to the sheriff or constable of the proper county, to be by him communicated to said board; or any person or corporation who shall bring into this state, or sell or dispose of any animal, knowing the same to be affected as aforesaid, or any animal having been exposed to such contagion, within three months of such exposure, or shall move the animal so diseased or exposed from the quarantine to which it was ordered by the board of commissioners, or shall move any animal to or from any district in this state declared to be infected with such contagious disease, or shall bring into this state any animal of the kind diseased from any district outside of the state that may at any time be legally declared to be affected with such disease without the consent of said board, except under such conditions as are or may be prescribed by said board, shall, upon conviction of either of the aforesaid offenses be fined in any sum not exceeding five hundred dollars. And all proper expense incurred in the quarantining of animals under the provisions of this act, shall be paid by the owners thereof, and if the same is refused, after demand made by the order of the commissioners, an action may be brought to recover the same with costs of suit, which action may be in the name of the state of Ohio, for the use of the board of live stock commissioners. It shall be the duty of all sheriffs and constables to execute within their several counties all lawful orders of the said commissioners.

Sec. 4211-13. [**Records of board; report; printing expenses; compensation, etc.**] The board of live stock commissioners shall keep a record of its acts and investigations of diseases of live stock and report the same to the governor on the first Monday of November, annually, and shall publish and distribute such bulletins and reports as may be deemed of general interest and information. The supervisor of public printing shall provide for such printing as the board may deem necessary and desirable to benefit the live stock interests of the state, under the same provisions as are made for other state printing. Each member of said board shall receive for his services the sum of *three* dollars per day and necessary traveling expenses for each day he is actually engaged in the investigation and eradication of diseases of domestic animals by the direction of the board.

Sec. 4211-15. [**Proclamation prohibiting importation of diseased live stock.**] Whenever the governor of the state of Ohio, upon receipt of information from the state board of live stock commissioners shall * * * believe that any dangerous, contagious or infectious disease has become epidemic in certain localities in other states, territories or counties, or that there are conditions which render domestic animals of such infected district liable to convey such disease, he shall, by proclamation, prohibit the importation of any live stock of the kind diseased into the state, except under such regulations as may be prescribed by the the state board of live stock commissioners and approved by the governor.

Sec. 4211-16. [**Appraisement and killing of diseased animals.**] When in the opinion of the commissioners it shall be necessary to prevent the further spread of any dangerous, contagious or infectious disease among the live stock of the state, to destroy animals affected with or which have been exposed to any such disease, it shall determine what animals shall be killed, and shall appraise or cause the same to be appraised, by disinterested citizens, as hereinafter provided, and cause such animals to be killed, and their carcasses to be disposed of as in the judgment of the commission will best protect the health of the domestic animals of the locality; provided, that no animal shall * * * be slaughtered under the provisions of this act unless first examined by a competent veterinarian in the employ of the commission, and the disease with which it is affected or to which it has been exposed adjudged to be a dangerous and contagious malady.

Sec. 4211-16*a*. [**Appointment of veterinarians; compensation; additional veterinarians, etc.**] The board of live stock commissioners shall appoint a competent veterinarian whose compensation shall be fixed by the board; such veterinarian to perform all duties prescribed by the board and be subject to such rules and regulations as it may adopt. In case of an out-break of animal disease, the board may, if it is deemed advisable, appoint temporarily, additional veterinarians or other persons for any special work in furtherance of the live stock interests of the state, and fix their compensation.

Sec. 4211-16*b*. [**Officers, agents or employes shall have authority to enter upon public or private premises, car, boat, etc.**] In the enforcement of any provisions of this act or any other laws relating to the board of live stock commissioners, and in the enforcement of the rules and regulations that may be adopted under the authority of section one (4211-9) of this act, the board of live stock commissioners, or any of them or their authorized officers, agents or employes, shall have authority to enter upon any public or private premises, or within any building wherein live stock is housed, or to enter any railway car or any boat or other conveyance used in the transportation of live stock, for the purpose of inspection and for the protection of the live stock of the state.

Sec. 4211-16*c*. [**Penalty and fine for failure to comply with the rules of the board of live stock commissioners.**] The failure of any individual, company or corporation to comply with the rules of the board of live stock commissioners, or to respect its regulations with regard to diseased animals, when notified so to do, shall subject the offender to a penalty of not less than fifty ($50) dollars nor more than five hundred ($500) dollars, to be recovered by civil action in the county where the offense is committed or in the county of Franklin, and in addition to the penalty above provided, a person violating any of the provisions of this act, shall be deemed guilty of a misdemeanor, and on conviction shall be fined not less than fifty ($50) dollars nor more than two hundred ($200) dollars; such fines and penalties to be collected in the name of the state of Ohio, for the use of the board of live stock commissioners.

Sec. 4211-16*d*. [**Co-operation with the United States in the enforcement of law.**] The board of live stock commissioners is authorized to accept on behalf of the state the rules and regulations prepared by the commissioner of agriculture under and in pursuance of section three, of an act of congress, approved May 29, 1888, entitled "An act for the establishment of a bureau of animal industry, to prevent the exportation of diseased cattle and to provide means for the suppression and extirpation of pleuro-pneumonia and other contagious diseases among domestic animals," and to co-operate with the authorities of the United States in the enforcement of the provisions of such act.

Sec. 4211-16*e*. [**The Bureau of Animal Industry of the United States to have right of inspection, quarantine and condemnation of animals; power to call upon constables, peace officers, etc.**] The inspector of the Bureau of Animal Industry of the United States shall have the right of inspection, quarantine and condemnation of animals affected with any contagious, infectious, or communicable disease, or suspected of being so affected, or that have been exposed to any such disease; and for these purposes are authorized and empowered to enter upon any ground or premises in the state. They shall have power to call upon any constables and peace officers to assist them in the discharge of their duties in carrying out the provisions of said act of congress; and it is made the duty of said officers to assist them when so requested. The inspectors shall have the same powers and protection as peace officers while engaged in the discharge of their duties.

Sec. 4211-17. [**Compensation for animals destroyed.**] In case of destruction of any animal under the provisions of this act, the compensation to be made for the same by the state shall be computed upon the basis of the actual value of the diseased animal, if any, at the time of slaughter; for any animal that has been kept in the same building or enclosure two-thirds of such value, and in case of other animals destroyed for the extinction of such disease, the full value of the same without reference to the suspicion of contagion; provided, that no compensation shall be made to any person who may have brought animals into the state affected with such contagious disease, or from a district in which such contagious disease existed, or who may have wilfully concealed the existence of such disease among his stock or on his premises or may have by wilful neglect or purposely contributed to the spread of such contagion; and in appraising animals to be slaughtered as herein provided no allowance shall be made on account of such animals being thoroughbred, or pedigree stock.

Sec. 4211-18. [**Appropriation to pay claims; how made.**] All claims against the state by owners of animals slaughtered under the provisions of this act, shall, when approved by the board of live stock commissioners, be reported by said commission to the governor, to be by him communicated to the legislature with the recommendation, if the matter is approved by him, that the proper appropriation be made to pay such claims.

WHEREAS, All cattle wintered in the states of Florida, South Carolina, North Carolina, Georgia, Alabama, Mississippi, Louisiana, Tennessee, Arkansas, Texas and the Indian Territory, are infected with a germ which renders them capable, except during the frost of winter, of infecting Northern cattle with a malady commonly known as "Texas fever," while they show no manifestation of disease; therefore,

Sec. 4211-19. [**The driving of cattle from certain states forbidden during certain months; conveyance by railway forbidden, except.**] During the months of March, April, May, June, July, August, September and October no cattle shall be permitted to be driven into this state from any of the above mentioned states or Indian Territory, or that shall have been wintered therein, nor shall any person or company bring, or cause to be conveyed into this state by railway or otherwise, any such cattle under said conditions, except as specified in the next section of this act.

Sec. 4211-20. [**Unloading of certain cattle in certain months forbidden, except.**] Any railroad or other transportation company conveying into or through this state, or any stock-yard company receiving such cattle during the months aforesaid, will not be permitted to unload the same in this state for any other purpose than to be fed and watered or for immediate slaughter, and in yards and premises especially provided for that purpose, into which northern cattle will not be permitted to enter. And the location and arrangement of the said yards or premises and the disinfection of the cars and quarters used in the transportation of such cattle shall be governed by the rules and regulations prescribed by the board of live stock commissioners.

Sec. 4211-21. [**Penalty.**] Any person or corporation that shall bring or cause to be brought or driven into this state, any cattle wintered in the states or territory above mentioned, or to be driven or conveyed otherwise than as herein specified, shall, upon conviction thereof, be fined in any sum not less than one hundred dollars, nor more than one thousand dollars, and shall, moreover, be liable for all damages that may be occasioned on account of other cattle being infected with said disease.

Sec. 4211-22. [**Duty of transportation companies; penalty for violation of such duty.**] It shall be the duty of all railway and other transportation companies bringing into and unloading in this state cattle, otherwise than as specified in section two (4211-20) of this act, during the months above specified, to require a statement to be made in their shipping bills, showing in what state or territory the cattle shipped were wintered; and it shall be the duty of every railroad company bringing into this state cattle, which may unload such cattle for any other purpose than to be fed and watered as specified in section two (4211-20) of this act, to leave at the office of such company nearest the point where such cattle may be unloaded, a copy for public inspection of the statement above required, showing where the same were wintered; and any company or corporation neglecting to comply with the provisions of this section, shall, upon conviction thereof, be fined in any sum not exceeding five hundred dollars.

Sec. 4211-23. [**Prosecution for offenses hereunder.**] Upon the request of the board of live stock commissioners it shall be the duty of the prosecuting attorney of any county in which the suit may be brought to begin and prosecute any action for the violation of the provisions of this act and the rules and regulations of the board of live stock commissioners. Proceedings against any railway company under this act may be had in any county in this state through which any portion of such company's road may pass, or in which its principal office may be situated; and process may be served by leaving a copy at the office of such company within such county.

Sec. 4211-24. [**Penalty for selling or failing to keep securely isolated horses, etc., affected with glanders.**] Any person owning or having in his charge any horse, mule or ass that he knows or has reason to believe is affected with the disease known as glanders or farcy, or that has been adjudged to be so affected by the state board of live stock commissioners upon a report made to said board by a competent veterinary surgeon, in their employ, after a careful examination of such animal, who shall sell or otherwise dispose of, or secrete the same, or shall fail to keep such animal securely isolated so that contact with other horses, mules or asses shall not be possible, shall, upon conviction of either of said offenses, be fined in any sum not exceeding five hundred dollars, and shall, moreover, be liable for all damages sustained by reason of same.

Sec. 4211-25. [**Appraisal and payment of compensation in case of destruction of such animals by order of live stock commission.**] In case the live stock commissioners shall order the destruction of any animal affected with glanders or farcy in the chronic stage of the disease, which may be adjudged capable of rendering some service, the board may cause the animal to be appraised, and order such compensation to be paid out on the order of the live stock commissioners, on the warrants of the auditor of state out of any funds in the treasury to the credit of the live stock commission, as in the judgment of the commissioners may be just, not exceeding its cash value; provided the horse was not diseased when passed in possession of the owner.

Sec. 4211-26. [**Penalty for suffering sheep affected with scab to run at large or for selling same, knowing, etc.**] Any person owning or having in charge any sheep affected with foot-rot or scab who shall suffer the same to run upon any highway, common or other uninclosed ground, or shall sell such sheep, knowing or having reason to believe them to be diseased, without disclosing the fact to the purchaser, shall, upon conviction of either of said offenses, be fined in any sum not exceeding one hundred dollars, and be liable to parties injured for all damages sustained.

(See Sec. 6855 as to allowing diseased animals to run at large.)

Sec. 4212. [**Duties of carriers and owners of stockyards.**] All railway companies and owners of steamboats used in conveying live stock and owners of stockyards and other premises that may be occupied by such stock, shall, immediately upon discovering any contagious disease among stock occupying such cars, boats, yards, or other premises, take all possible measures to prevent such diseased stock from communicating the contagion to other stock, and shall moreover cause all such cars, boats, yards, and premises to be thoroughly disinfected before the same shall be occupied by other stock. Every corporation and company, their officers and employes, or individuals violating the provisions of this section, shall pay a penalty not exceeding five hundred dollars, to be recovered in any court of competent jurisdiction, and shall also be liable to parties injured for all damages that may be occasioned thereby.

Sec. 4212-2. [**When dog may be killed at any time; owner liable for damages.**] Any animal of the dog kind that chases, worries, injures or kills any sheep, lamb, goat, kid, domestic fowl, animal or person, may be killed by any person, at anytime or place. And the owner, owners or harborers of any animal of the dog kind, that chases, worries, injures, or kills any sheep, lamb, goat, kid, animal or person, shall be jointly and severally liable to any person so damaged to the full amount of the injury done; and the court or justice before whom the recovery is had for any such injury shall declare the animal found to have occasioned the injury to be a common nuisance and order the defendant to kill or cause to be killed such animal within twenty-four hours after the rendition of the judgment; or the court or justice may order any constable or marshal or sheriff to kill such animal.

AN ACT

TO REGULATE THE PRACTICE OF VETERINARY MEDICINE.

Sec. 4412-1. [**Examination of veterinarians.**] All persons who now, or shall hereafter, practice veterinary medicine and surgery in the state of Ohio, and have not been engaged in such practice for at least three years prior to the passage of this act (May 21, 1894), in the state of Ohio, shall be examined as to their qualifications by a state board of veterinary examiners, to be appointed as hereinafter provided.

Sec. 4412-2. [**Certificate.**] Any one who successfully passes the examination before the state board of veterinary examiners shall receive from said board a certificate signed by the members thereof, which certificate shall state that the person to whom it is given has passed the prescribed examinations and is competent to practice veterinary medicine and surgery. A copy of such certificate shall be recorded by the clerk of said board in a book kept for that purpose which shall be open to the public inspection.

Sec. 4412-3. [**Veterinarians employed by state boards.**] Persons who have passed the requisite examinations and received a certificate from the state board of veterinary examiners, and those who have continuously practiced veterinary medicine and surgery for at least five years, and no others, shall be qualified and be entitled to be employed as veterinarians by the state board of agriculture, state live stock commission and state board of health.

Sec. 4412-4. [**State board of examiners.**] The state board of veterinary examiners shall consist of five members. The secretary of the state board of agriculture and the secretary of the state board of health shall be ex-officio members of said board. Three members thereof shall be appointed by the governor and confirmed by the senate for the terms respectively of two, four and six years, and every two years thereafter the governor shall appoint a member for the term of six years. Vacancies in said board shall be filled by appointment for the unexpired term. The members so appointed by the governor shall be graduates of reputable but of different veterinary schools or colleges, and men of superior learning, personal skill and good moral character.

Sec. 4412-5. [**Meetings, etc.**] The board shall meet at least twice a year—in April and July—in the city of Columbus. At the first meeting the board shall organize by electing from its members a president, secretary and treasurer, who shall hold their offices for two years or until their successors have been elected and qualified. The secretary shall keep an accurate record of the business transacted and of the certificates issued as heretofore provided. He shall collect the fees to be paid by the applicants for examination and pay the same over to the treasurer and shall perform such other duties as the board may prescribe. He shall keep a correct account of all moneys received and disbursed.

Sec. 4412-6. [**Compensation of members.**] The board each shall receive three dollars per day, while in session, and his actual traveling expenses, to be paid by the treasurer out of the fees paid by the candidates for examination.

Sec. 4412-7. [**When certificate issued; eligibility of unsuccessful candidate.**] A certificate shall be issued only when the board is satisfied that the candidate examined is well qualified and entitled to a certificate. The candidate, if unsuccessful, shall not be eligible to another examination until the expiration of one year thereafter.

Sec. 4412-8. [**Time and fee for examination.**] Candidates shall present themselves for examination at the regular meetings of the board and shall pay for each examination the sum of five dollars, which shall accompany their application in writing, and be paid to the secretary of the board previous to the regular meeting of the board. One-half of the five dollars shall be returned if the candidate fails in the examination or if a diploma is accepted in lieu of an examination.

Sec. 4412-9. [**Acceptance of diploma in lieu of examination.**] The board may accept a properly issued diploma in lieu of an examination; but such a diploma shall be accepted only if it has been issued by a reputable veterinary school or college, that requires a course of study and gives instruction in all the various branches of veterinary science.

Sec. 4412-10. [**Penalty; emergency.**] Whoever shall engage in the practice of veterinary medicine or surgery in violation of this act shall, for the first offense, be fined not less than ten dollars, nor more than twenty-five dollars, and for the second offense not less than fifty dollars nor more than one hundred dollars, or be imprisoned in the county jail not more than sixty days, or both. Provided, that nothing in this act shall be construed to prohibit any veterinary advice or service in cases of emergency if rendered by a person not entitled to practice under this act. Nor shall it apply to animal castration and dehorning of cattle.

Domestic Animals.

Sec. 6850. [**Altering ear-marks or brands of domestic animals.**] Whoever maliciously alters or defaces any artificial ear-mark or brand, upon any horse, mare, foal, filly, jack, mule, ass, sheep, goat, cow, ox, steer, bull, heifer, or swine, the property of another, shall be fined not more than fifty dollars, or imprisoned not more than twenty days, or both.

Sec. 6855. [**Selling diseased animals, allowing same to run at large or come in contact with other animals.**] Whoever, being the owner, or having the charge of any animal mentioned in section *sixty-eight hundred and fifty*, knowing the same to have any infectious or contagious disease, or to have been recently exposed thereto, sells, barters, or disposes of such animal, without first disclosing to the person to whom the same is sold, bartered or disposed of, that such animal is so diseased, or has been so exposed, as aforesaid, or knowingly permits such animal to run at large, or, knowing such animal to be diseased as aforesaid, knowingly permits the same to come into contact with any such animal of another person without his knowledge or permission, shall be fined not more than five hundred nor less than twenty dollars, or imprisoned not more [*than*] thirty days or both.

Sec. 6882. **[Defacing or destroying advertisements or notifications set up by authority of law, or by bridge owners.]** Whoever intentionally defaces, obliterates, tears down, or destroys, in whole or in part, any copy or transcript of any law of the United States, or of the state of Ohio, or any proclamation, publication, advertisement or notification whatsoever, set up in any public place, for the public information of any citizen, by the authority of any law or act of this state, or any sign, notice, card, or table of rules or rates or any other notice, affixed or posted upon any bridge, by any owner or keeper thereof, for the information of the public, shall be fined not more than twenty dollars, or imprisoned not more than twenty-four hours, or both.

Sec. 6923. **[Unlawful deposit of dead animals, offal, etc., into or upon land or water.]** Whoever puts the carcass of any dead animal, or the offal from any slaughter house, or butcher's establishment, packing house, or fish house, or any spoiled meat, or spoiled fish, or any putrid substance, or the contents of any privy vaults, upon or into any lake, river, bay, creek, pond, canal, road, street, alley, lot, field, meadow, public ground, market space or common, and whoever being the owner or occupant of any such place, knowingly permits any such thing to remain therein, to the annoyance of any of the citizens of this state, neglects or refuses to remove or abate the nuisance occasioned thereby, within twenty-four hours after knowledge of the existence of such nuisance upon any of the above described premises, owned or occupied by him, or after notice thereof in writing, from any supervisor, constable, trustee, or health officer of any municipal corporation or township in which such nuisance exists, or from a county commissioner of such county, shall be fined not more than fifty dollars nor less than ten dollars, and pay the cost of prosecution, and in default of the payment of said fine and costs, be imprisoned not more than thirty days, but the provisions hereinbefore made shall not prohibit the depositing the contents of privy vaults and catch-basins into trenches or pits not less than three (3) feet deep, excavated in any lot, field or meadow, the owner thereof consenting, outside the limits of any municipal corporation, and not less than thirty rods distant from any dwelling, well or spring of water, lake, bay or pond, canal, run, creek, brook or stream of water, public road or highway; provided, that said contents deposited in said trenches or pits are immediately thereafter covered with dry earth to the depth of at least twelve inches; nor shall said provisions prohibit the depositing of said contents into furrows situate and distinct, as specified for said trenches or pits; provided, the same are immediately thereafter wholly covered with dry earth by plowing or otherwise; and provided, also, that the owner or occupant of the land in which said furrows are plowed consents, and is a party thereto; provided, also, that the board of health of any municipal corporation may allow said contents to be deposited within corporate limits into trenches or pits or furrows, situate, distant and to be covered as aforesaid.

Sec. 6923*a*. **[Bodies of animals dying from contagious diseases must be burned or buried.]** The bodies of all animals dying from contagious disease, shall be burned, or buried at least four feet below the surface of the ground by the owner thereof. Any such owner permitting such dead animals to remain unburned, or unburied, or neglecting, or refusing to comply with the provisions of this section within twenty-four hours after having knowledge of the existence of such dead animals, or after notice thereof, in writing from the trustees of the township in which such dead animals may be found, it shall be the duty of said trustees to proceed to dispose of such dead animals as provided in this section, and such owner, so neglecting or refusing shall be fined in any sum not less than five dollars, nor more than twenty dollars, together with the cost of suit, and all necessary expenses incurred by said trustees in disposing of such animals. Action to recover fines, costs, and expenses as herein provided, shall be brought upon complaint of said trustees before any justice of the peace, in the township in which such owner resides. Provided, that the dead bodies of such animals may be removed to a fertilizing establishment, if removed in a water tight tank.

Sec. 7003. [**Importing cattle infected with Spanish fever.**] Whoever except common carriers not the owners of cattle transported by them, brings into this state any cattle infected with the disease commonly known as the Texas or Spanish fever, or cattle liable to impart such fever to other cattle, shall be fined not more than five hundred nor less than fifty dollars.

For "an act to prevent the introduction of Texas fever among cattle" (85 v. 83), see § (4211-19) et seq.

[APPENDIX B.]

GENERAL RULES OF THE BOARD OF LIVE STOCK COMMISSIONERS OF OHIO.

Rule 1. When supposed cases of dangerously contagious or infectious diseases of live stock are reported to the Board of Live Stock Commissioners, the Secretary of the Board shall, when, in his judgment it appears necessary, direct the State Veterinarian to make a thorough examination of the affected animal or animals; and if the State Veterinarian is of the opinion that any contagious or infectious disease exists, he shall, if deemed necessary, at once cause to be quarantined the diseased, as well as all exposed, animal or animals and premises or farms where such disease exists, and report his action to the Secretary of the Board.

Rule 2. No examinations or investigations shall be made in accordance with Rule 1 until the Secretary of the Board and the State Veterinarian are satisfied that the reports of outbreaks of disease are reasonably well founded.

Rule 3. The Board of Live Stock Commissioners, before ordering an investigation by the State Veterinarian, may require two or more reputable citizens of the county in which a reported case of dangerously infectious disease exists, to make a written statement confirming such report.

Rule 4. When the State Veterinarian shall order diseased animals, or such as have been exposed to a contagion, and any premises or farms where such disease exists, to be strictly quarantined, he may call upon the sheriffs or constables of the county or counties in which such quarantine is ordered, to execute said quarantine. All proper expense incurred in the quarantining of animals shall be paid by the owners thereof. Any quarantine ordered by the State Veterinarian shall remain in force until removed by his order.

Rule 5. In case the Board of Live Stock Commissioners shall order the destruction of any animal affected with glanders or farcy, in the chronic stage of the disease, which may be adjudged capable of rendering some service; or when, in the opinion of the State Veterinarian, it shall be necessary to prevent the spread of any contagion or infection among the live stock of the state, he may require diseased animals to be killed and their carcasses burned or buried, as he may direct; in either case, said animals shall be appraised by disinterested freeholders of the county in which such animals are owned, one to be selected by the owner of the animal or animals killed or destroyed, and another by the Board of Live Stock Commissioners; and these two, if they cannot reach an agreement, shall select a third person to act with them; these shall make the report of their findings to the Secretary of the Board of Live Stock Commissioners and he shall refer the same to the Board; and, if findings are approved, the Board shall report the same to the Governor of the State, to be by him communicated to the Legislature, with the recommendation, if the matter is approved by him, that the proper appropriation be made to pay such claims.

Rule 6. The State Veterinarian may prescribe and publish rules for disinfection of barns, sheds or premises where infectious diseases exist or have existed, and for the disinfection of harness, utensils, wagons, etc., kept on such premises.

Rule 7. Upon request of owners desiring to ship animals to other states or territories requiring certificates of health accompanying such animals, it shall be the duty of the State Veterinarian, or an inspector designated by him, to inspect said animals, and if, after inspection, the State Veterinarian is satisfied that the animals in question are free from observable symptoms of any dangerous, infectious or contagious disease for which the particular state or territory into which the animals are intended to be shipped requires inspection he shall issue the required certificate.

Rule 8. All expenses of inspection provided for in Rule 7 shall be borne by the owner or shipper who makes request for inspection, and shall be at the rate of five dollars ($5) per day, or fraction thereof, and all necessary expenses of travel and subsistence.

Rule 9. Owners of abattoirs or other persons desiring to import Southern cattle for the purpose of immediate slaughter must apply to the Board of Live Stock Commissioners for a permit to unload such cattle within this State. Upon receipt of a request for such permit, the Secretary shall direct the State Veterinarian to inspect the pens and abattoirs to be used for the purpose specified, and if these are found to conform with the requirements of the Board of Live Stock Commissioners for the unloading of Southern cattle, the Secretary and the State Veterinarian shall issue the permit.

[APPENDIX C.]

To Railroad, Steamboat, Transportation, Abattoir and Stock Yard Companies and Their Employes:

Your attention is hereby called to those laws of Ohio which relate to the bringing of certain cattle into this State, viz.: Sections 4211-19, 4211-20, 4211-21, 4211-22 and 4211-23, Revised Statutes. A copy of these laws is enclosed herewith.

The rules and regulations of the Board of Live Stock Commissioners regulating the unloading of *Southern* or *quarantine cattle* are given below:

1. The pens for receiving Southern or quarantine cattle for purposes of feeding, watering or immediate slaughter must be constructed of two strong board fences which must be at least five feet high and separated by a space of at least *twelve feet* and into which space or passage no cattle or stock of any kind shall be permitted to enter.

2. The pens used for receiving Southern or quarantine cattle for the purposes above mentioned shall not be used for receiving any other kinds of live stock.

3. Before any person, company, firm or corporation may legally handle Southern or quarantine cattle a permit must be obtained from the Board of Live Stock Commissioners; such permit to be furnished after the State Veterinarian has, at the request of the person, company, firm or corporation desiring such permit, completed an inspection of the pens intended to be used for the purposes mentioned, and found them safe places for handling such cattle.

The State Veterinarian shall also designate a suitable place at or near the point of unloading in which cattle cars used for transporting Southern or quarantine cattle shall be cleaned and disinfected before they are again used for the transportation of other live stock or merchandise of any kind, and before the quarantine placards placed on such cars are removed.

The following rules* for cleaning and disinfecting cattle cars used for transporting Southern or quarantine cattle have been adopted by this Board:

Remove all litter and manure and disinfect it by mixing it with lime or saturating it with a 5 per cent. solution of 100 per cent. carbolic acid, or, if not disinfected, it may be stored where no cattle can come in contact with it during the period from February 1 to November 15 of each year. Wash the cars and the feeding and watering troughs until clean. Saturate the entire interior surface of the cars and fencing, troughs and chutes of the pens with a mixture of 1½ pounds of lime and one-quarter pound of 100 per cent. straw colored carbolic acid to each gallon of water; or a solution made by dissolving four ounces of chloride of lime to each gallon of water may be used; or disinfect the cars with a jet of steam under a pressure of not less than 50 pounds to the square inch.

By order of the State Board of Live Stock Commissioners.

W. W. Miller,
Secretary.
Paul Fischer,
Veterinarian.

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*These rules were issued in Order No. 93, Bureau of Animal Industry, U. S. Department of Agriculture, and have been adopted by the Board of Live Stock Commissioners of Ohio.

[APPENDIX D.]

PERMIT FOR RECEIVING SOUTHERN CATTLE FOR THE PURPOSE OF IMMEDIATE SLAUGHTER.

COLUMBUS, O., ..., 190..

THIS IS TO CERTIFY, That the cattle pens and abattoir used by .... in .... ,Ohio, for receiving Southern cattle for the purpose of immediate slaughter have been duly inspected by the State Veterinarian and have been found to conform with the requirements of the Board of Live Stock Commissioners for the unloading of Southern or quarantine cattle.

The owner.. or manager.. of this abattoir hereby agrees to use said pens for the purpose of receiving animals to be immediately slaughtered and for no other purpose. The owner.. or manager.. of this abattoir further agrees to clean and disinfect, according to the rules of the Board of Live Stock Commissioners, all cars in which..he..receives Southern, or quarantine cattle, and to notify said Board within forty-eight hours of the time that such cleaning and disinfection was performed. Cars requiring disinfection must not be removed from the yards where cattle were unloaded until they have been cleaned and disinfected as above provided.

The rules for cleaning and disinfecting Southern cattle cars are given below:

> "Remove all litter and manure and disinfect it by mixing it with lime or saturating it with a 5 per cent. solution of 100 per cent. carbolic acid, if not disinfected it may be stored where no cattle can come in contact with it during the period from February 1 to November 15 of each year. Wash the cars and the feeding and watering troughs until clean. Saturate the entire interior surface of the cars and fencing, troughs and chutes of the pens with a mixture of 1½ pounds of lime and one-quarter pound of 100 per cent. straw colored carbolic acid to each gallon of water; or a solution made by dissolving four ounces of chloride of lime to each gallon of water may be used; or disinfect the cars with a jet of steam under a pressure of not less than 50 pounds to the square inch."

This permit is issued ...., 190.., and is to remain in force until January 1, 190.., or until it is withdrawn by the State Board of Live Stock Commissioners.

....
Owner or Manager of Abattoir. *Secretary B. of L. S. C.*

....
State Veterinarian.

[This permit is not valid unless signed by the owner or manager of the abattoir for which it is issued and by the Secretary and Veterinarian of the State Board of Live Stock Commissioners. Penalty for unloading Southern cattle without this permit is $100 to $1,000 and liability for all damages that may be occasioned on account of other cattle being infected with Southern cattle fever. See Sec. 4211-21, Revised Statutes.]

[APPENDIX E.]

THE PREVENTION OF SWINE PLAGUE AND HOG CHOLERA.

By Dr. Paul Fischer, *State Veterinarian.*

Swine plague and hog cholera are the most common and destructive diseases of swine. The annual losses which they occasion are enormous. The fact that both diseases are at the present time practically incurable leaves us the only alternative of using every means in our power to prevent their introduction into healthy herds. Prevention is the best method of dealing with any communicable disease. For swine plague and hog cholera we know of no other method.

In this short article I shall confine my remarks as strictly as possible to this phase of the question.

The investigations of bacteriologists have shown that swine plague and hog cholera are two different and distinct diseases of swine. The clinical picture of these diseases, their mode of infection and manner of dissemination offer many points of similarity; both are very fatal, and as far as practical hints on their prevention are concerned, what applies to one of them applies equally well to the other. For this reason my remarks will be limited to swine plague, the reader bearing in mind that the facts and suggestions are equally applicable to both diseases.

Swine plague is a very fatal, infectious and contagious disease of swine. It is caused by a so-called "germ" known as the swine plague bacillus, an inconceivably minute vegetable parasite that grows in the animal tissues and by the poisons or toxines which it excretes it causes the symptoms observed in the course of the disease. An idea of the size of this "germ" may be obtained from the statement that fifty thousand of them placed side by side in a row would not make a line one inch long. This extreme minuteness is of the utmost importance when the question of prophylaxis, or prevention, is considered, as we shall see later.

In order to be able to intelligently provide means for the prevention of a disease we must know something of its cause, how infection takes place and how the infectious principle (germ) is spread from place to place and from animal to animal.

The cause of swine plague is the swine plague bacillus; it is positively known that this is the sole cause of the disease. If we can escape or avoid the cause of any disease we can with absolute certainty prevent the disease. This is the simple statement of an actual fact. Carrying out this idea in a practical way is a practical possibility, but sometimes attended with difficulties. We find the swine plague bacillus in the tissues, blood, secretions and discharges of every animal affected with swine plague. These are the only direct sources of this bacillus that are known. The disease spreads by the spread of its germs. Where the first pig became infected with swine plague bacilli is as little known as where the first pig itself came from, and is of little importance here. . At the present time we can, however, trace both of them to direct ancestors, and can get them from no other source.

How do Healthy Pigs Become Infected?

Healthy pigs always become infected with the products, excretions or discharges of sick pigs.

1. Any of these products may become dry, reduced to dust, and inhaled by a healthy animal. The smallest visible particle of dust is large enough to carry with it hundreds of germs. In this way the lungs are affected and a cough or some form of pneumonia is the first symptom of the disease.

2. The food of healthy pigs may be contaminated with the discharges of sick ones. Here the stomach and intestines become the seat of the first morbid changes, and diarrhœa, constipation and other symptoms of digestive troubles are first observed.

3. Wounds, such as are produced by castration, may become infected by contact with infected excretions or discharges. Slight abrasions of any kind, even slight wounds inflicted by lice, answer the same purpose. In these ways general or blood infections take place.

After the germs leave the sick animal's body they may remain alive and able to produce disease a very long time. How long such germs remain active depends entirely on the conditions of heat, light and moisture under which they are kept and on the substance in which they are present. A warm, moist and dark place containing organic matter, decaying vegetation, manure, etc., is most favorable for their long continued existence. Great heat, dryness and direct sunlight tend to destroy disease germs of all kinds after a certain time. Mere drying, however, requires a very long time to destroy many disease germs. This is an important point in the question of disinfection.

We have seen how animals become infected with swine plague germs when diseased hogs are present. Now the question arises:

How are healthy and comparatively, or apparently, isolated herds infected and how are the disease germs transported from place to place?

Healthy herds become infected by the direct or indirect introduction of disease germs from infected herds. It is here proper to state that swine plague germs have no power of independent motion from place to place—they cannot fly. The disease, therefore, does not, and cannot, spread through the air. Dust-laden air may carry the germs, but here it is the dust particles to which the germs cling and not the air that acts as a carrier. Such infected dust is probably never carried any great distance. It is carried from pen to pen, when these are adjacent, but rarely to any greater distance.

The important distributing agents of the hog cholera germs are persons, animals, utensils and conveyances employed, or used in or about swine plague infected pens, also water courses, etc. Attendants carry the germs on their boots and in their clothing; animals carry them in the mud on their feet and in their hair coats; wagon wheels move infected dirt from place to place; utensils or vessels used in and about pens may harbor countless germs. Dogs and other animals, even birds, may spread the contagion from place to place. Finally, water courses, rivers, creeks and drains or ditches of any kind that course through or near infected pens carry the disease germs from place to place. The amount of material thus moved and introduced into a healthy herd is entirely immaterial. A single germ, under favorable conditions, is just as capable of producing a fatal attack of disease as any number of millions. The extreme rapidity with which these simple organisms multiply readily explains this. *A single swine plague bacillus, in twenty-four hours, may have developed into many millions.*

When the bacilli have once been introduced into a herd they rapidly multiply and infection is only a question of a short time. The time required for a distinct outbreak of disease to appear after the germs have been introduced on the premises, must, of course, vary with the opportunities for infection. Constitutionally weak, sickly, very young or wounded (recently castrated) animals are attacked sooner than others. After the germs have once entered the body of an animal, that is, after infection of the animal has occurred, the first symptoms of disease will, as a rule, appear in the course of a few days, but a pig *may* harbor these germs five weeks before distinct symptoms of the disease can be noticed. The long time that may thus sometimes elapse accounts for many mysterious infections where no possible source or opportunity of infection can be recalled or imagined.

If swine plague is caused by certain species of bacteria and if these bacteria are the sole cause of this disease, we might ask, why does the disease occur only, or principally, in certain seasons of the year? This is easily explained. Fall and spring are the hog cholera or swine plague seasons. These are the times when the conditions of temperature and moisture are most favorable to the propagation of these disease germs and opportunities for infection are most numerous. At these seasons of the year traffic in hogs is at its highest. Pigs are bought, sold and exchanged, all kinds from many localities are put together in feeding pens, are fed poorly balanced rations that are intended to fatten a previously half-starved animal in the shortest possible time. This will do anything but aid an animal in resisting an attack of disease. Although no swine plague can develop without the swine plague bacillus, it is a well-known fact that all animals that are exposed to infection by this germ do not take the disease. Every animal has a certain natural power to resist disease. This power to resist disease varies exceedingly in different animals, just like growing and fattening qualities differ widely. Some animals possess this power to such a degree that they absolutely resist an attack of swine plague—even direct injection of pure cultures of germs has no disease-producing effect. Such animals are said to be *immune*. Other individual animals possess exactly opposite qualities; they cannot resist the slightest attack. This partly explains why some animals have mild attacks, others severe attacks; the former usually recover, the latter die. Still others, as above stated, are immune, and in some animals the disease takes a chronic course. Why and how all this is cannot be explained here, but this may be stated: The natural disease-resisting power of an animal can be artificially increased to such an extent that under ordinary conditions it will greatly aid the animal to successfully resist an attack of swine plague. Proper food, care and shelter, proper breeding, and avoiding everything that tends to weaken an animal's constitution are the points to be looked after. A fat, flabby pig fed almost wholly on corn stands the smallest chance of escaping a fatal attack. A half-starved animal cannot fare much better. In either case the food itself is not the direct cause of the disease, it has simply prepared the animal for a fatal attack.

We have now seen how animals become infected with the germs of swine plague, how the germs are conveyed from one animal to another through food, drink, inhalation of dust-laden air, and direct introduction through wounds, and how the germs are carried from one herd to another, from farm to farm, and, finally, the conditions which are most favorable for producing fatal infections. This prepares us for the main question:

How can we prevent swine plague?

The answer is plain: Avoid the swine plague germ, and, in addition, for the sake of both profit and health, feed and breed according to scientific principles.

The first injunction is the most difficult and important one. To fulfill it requires the utmost care and foresight. Nevertheless, it is mere child's play compared with burning cholera corpses, and certainly more remunerative.

Successful prevention of contagious and infectious diseases requires attention in every minute detail. We are dealing with an invisible enemy and, therefore, must constantly guard every possible port or means of entrance.

To begin properly we should select a suitable site for the pig pen. A high, dry and light place, not near a stream, ditch or any other drain that could act as a carrier of germs either to or from the pens (our neighbors should be considered as well as ourselves, because we expect them to consider us). The pens should be built in such a way that they can be cleaned readily and thoroughly, and, if necessary, disinfected. They should be moderately high and have plenty of large doors and windows to admit air and sunshine; these latter are real tonics and at the same time they check the development of, or even absolutely destroy, disease germs.

Second. Have healthy pigs to begin with and feed them properly balanced rations; this increases their power to resist disease. Avoid inbreeding and the use of weak males. Keep the pigs free from lice and worms. It is a significant fact that most pigs that have cholera or swine plague are lousy or have intestinal worms! These parasites predispose animals to infection by germs. Use straw or other material for bedding or use no bedding at all, whichever suits your conditions better, but keep the sleeping quarters dry and as free from dust as is possible with proper care, and do not allow the pigs to burrow and sleep under an old straw pile or live in or under the manure heap.

It will be seen that the methods here suggested are radically different from those found in common practice, but this should not discourage any one. Our object in doing these things is the prevention of swine plague and hog cholera and increasing the profit of pork production by eliminating the greatest factor in the direction of loss. Past methods have so evidently failed to do this that nothing but a radical change of methods can be expected to accomplish anything.

Third. After doing everything possible toward beginning with a healthy herd and providing sanitary quarters and feeding wholesome food adapted to the ends desired, we must keep out the swine plague bacillus. This is done by personal or individual quarantine or isolation of the pigs and their pens. This is the whole thing in a nutshell. It is a most difficult problem, nevertheless it is absolutely possible.

Contagious pleuro-pneumonia of cattle is the cause of losses amounting to millions annually in many countries of Europe and other continents.

This disease was introduced into America in 1843, and in the course of time by natural methods of spreading and reimportation from Europe a large number of the Eastern states became infected with this disease. Not until 1887 were serious attempts made by the United States government to stamp out this disease. In 1892, after five years, the disease was officially declared to be eradicated by the Bureau of Animal Industry of the United States Department of Agriculture. This was done at a cost to the Federal Government of about one million, five hundred thousand dollars. The benefit to the cattle industry of America from this work can simply not be estimated. But the point that I wish to make is this: If a disease like contagious pleuro-pneumonia of cattle can be controlled and stamped out of a country as large as America, how much more simple a matter would it be to control a disease on a single farm? For example, hog cholera or swine plague. Both classes of diseases are due to micro-organisms; infection takes place in a similar manner, and although all details in handling the two problems are by no means identical, the principles upon which they depend are exactly the same. As long as the federal or state governments do not take the work in hand each farmer or swine-breeder must work out his own salvation. Concerted action and general co-operation of swine-breeders generally, made possible by associations, would simplify and aid matters materially. But this is said only by the way. Let us now consider the necessary means and methods at the disposal of individual owners.

I will repeat that strict individual quarantine is the basis upon which the solution of our problem seems to rest.

What is "Quarantine?"

"Quarantine" means a space of forty days, the time formerly required for a ship to remain isolated and forbear all intercourse with the shore when it was suspected of being infected with some contagious disease. At the present time "quarantine" means simply the complete isolation of any person, animal, building or premises for the necessary length of time to prevent the spread of a contagious or infectious disease.

A quarantine may be ordered by federal, state or local authorities, or it may be a personal or individual matter. At the present time personal quarantine by the owner of the swine is the most effective means for controlling swine plague, or hog cholera. In this case the owner quarantines the whole country to protect his own herd. This amounts to a simple trespass notice which every person is legally bound to observe.

Note the following instructions:

1. Let no unauthorized person approach within fifty feet of your hog pens or yards. This includes everybody who you are not absolutely certain has not been with or near swine plague infected, or other hogs, or animals, or pens, or things which, or persons who, could in any possible way carry or harbor swine plague germs. The personal appearance of individuals is no criterion upon which to base distinctions. Always suspect everybody until proved innocent or harmless.
2. Permit no animals to which the above remarks may apply to approach nearer than fifty feet to your pens or yards where the hogs are kept. The same applies to wagons, carts, utensils, even food and clothing; in fact, to anything and anybody.

3. Instruct attendants to keep strictly away from cholera or swine plague infected, or any other kind of, hog pens or premises where hogs are kept or have recently been.

4. Politely inform your neighbors that trespassing on your premises near your hog pens is forbidden under penalty of the law and explain to them what the word trespassing as here used, means.

5. The owner of the hogs is just as liable to carry and introduce disease germs as anyone else; bear this in mind and act accordingly. If your neighbor's hogs are dying of some mysterious disease, take his word for it, but investigate no further; assume that it is cholera or swine plague and exercise increased vigilance. Do not go over to look at the sick hogs, you may soon have some of your own if you do.

6. The laws of Ohio forbid the transportation, in any way, of cholera or swine plague infected hogs, or hogs exposed to cholera or swine plague, or their carcasses or products. Special rules and regulations of the Board of Live Stock Commissioners also forbid such transportation. Persons violating these laws or rules are liable to heavy fines, ranging from fifty to five hundred dollars, in addition to other penalties. Remember this and be free in imparting this information wherever it is needed.

7. When any infectious swine disease is prevalent in your neighborhood or county exercise increased care in following the instructions here outlined. Re-read this bulletin occasionally.

8. Observe care in introducing new stock into your herds. Remember that a pig may have the swine plague germs in his system five weeks or more without showing ordinary symptoms of disease. Never buy stock pigs to feed; this is the best way known to infect your premises with swine diseases. No matter how good a judge you may think you are, you cannot recognize hog cholera or swine plague by simply looking at the pig. If you have followed this business for any number of years with good success, stop it now. The time will come when you will see your mistake.

9. Breed and raise your own animals; it is cheaper and better in every way, and no other way is safe.

10. If you must buy a new herd or a new boar, make careful inquiries as to the existence of the disease, and then, if everything looks safe, take the animals home and put them in a special pen, isolated from the rest, at least fifty feet away from other hogs, and quarantine them for six weeks; in the meantime keep careful watch for any signs of disease. If at the end of that time the animal or animals are still in perfect health and show no suspicious symptoms, and have had no possible opportunity to become infected while under quarantine, you may remove your restrictions and allow the newly acquired animals to mingle with the rest. This is going to some trouble, and, perhaps, expense, but do not expect results without these little incidentals.

Disinfection.

It would hardly be proper to close this article without a word about the subject of disinfection. The principles upon which disinfection depend are the foundation of sanitary science. At the same time it is no exaggeration to state that, as ordinarily practiced, disinfection is worse than useless. It is not only time and money wasted, but it gives a false feeling of security that may lead to great harm.

The object of disinfection is the destruction of disease germs, and of germs of putrefaction and decomposition. To be of any benefit, the process must be thorough and complete, otherwise it is not *disinfection.* When disinfecting for disease germs this is of special importance. It is a matter of destroying millions upon millions of invisible organisms. It, therefore, stands to reason that destruction of half of them, or three-fourths of them, or even of ninety-nine per cent. of their number is not sufficient. Every single germ must be destroyed! One germ that escapes may do as much harm as a million. The requirements for success are:

1. The proper preparation of the place to be disinfected.
2. The selection of a suitable disinfectant.
3. Thorough application of the disinfectant.

1. Clean the yards, pens, troughs, utensils, etc., to be disinfected. Remove all litter, rubbish and loose stuff of any kind; do not allow a particle to remain. Use a sharp hoe or spade, and then a broom to finish up. Haul this material, if it is good for manure, out on a level field where no drainage takes place and where no animals have access, spread it out in a thin layer and thus expose it to the action of the sun's rays. This will soon make the mass harmless. Do not expect the sun to disinfect great chunks; the particles must be fine, like a top-dressing for wheat. Material that cannot thus be utilized must be burned. Do not haul any of this material over roads that you will drive swine over the next time, and do not forget that the wagon also needs disinfection when you get through with it. Remove all loose, broken or rotten boards from the floor and sides and burn them. If there is a dirt floor, remove several inches of this or as deep as the secretions or excrements of the animals may have soaked down. Then treat this like the manure. Treat straw and manure piles that were exposed to infection the same way.

2. After thorough cleaning and destruction by burning of everything useless we are ready for our disinfectant. There are many good disinfectants. No particular disinfectant is better than all others. Some have one advantage, others another. Some are better for certain disease germs, others for other purposes. The odor of a disinfectant is no indication of its strength. The strongest disinfectants have no odor at all. For general disinfection crude carbolic acid is about as cheap as anything else and much safer than some others. We use it in five (5) per cent. solutions. This is approximately made by dissolving three tablespoonfuls of carbolic acid in one quart of water, or by dissolving one pound of the "acid" in two and one-half (2½) gallons of water. *Unslaked* lime used freely is also a reliable disinfectant. For articles that can stand it, boiling for one minute destroys *all ordinary* disease germs.

3. The disinfectant is best applied with a spray pump. Wet, or soak, every inch of floor and wall space, outside and inside; the roof and ceiling of pig pens must also be included. See that every crack and crevice comes in touch with the liquid. Every nail hole must be wet with it. Allow nothing to escape. Don't forget sills, rafters, cross-beams and shelves. The dirt floor must be thoroughly soaked with the disinfectant. Troughs and utensils, wagons, tools, in short everything must be treated in the same way. When you are through, disinfect your shoes in the same way, and your clothes by boiling them.

Then open all doors and windows wide and give the air and sunshine free access for a week or ten days. If this work is done thoroughly no dangerous disease germs will be left and the pens will be safe once more.

Yards of any size, and particularly where much rooting has been done by the pigs, cannot easily be disinfected. A good plan is to seed these down; best with some crop to be cultivated, and in the course of a year the ground will be safe.

These are brief directions for disinfection of disease-infected quarters, after the diseased animals have been removed and the dead ones destroyed by burning.

Disinfection for other purposes need not be so thorough, because putrefaction and decomposition germs are everywhere and cannot be completely removed. With them our object is simply to reduce numbers. The more thoroughly this is done, of course, the better. For this latter purpose all pens and stables should be cleaned and disinfected whenever and as often as they need it. This varies with different conditions, places, and the person who does the work. Where pens or farms have become infected with cholera the plan above outlined should be followed and then no pigs kept on the place for one year; or if the time extends over the hot season, six months will suffice. After this, new stock, by observing the precaution of quarantining six weeks, may, with safety, be introduced. Under no considerations be induced to buy from neighborhoods where infectious or contagious swine diseases of any kind are reported to exist.

Summary.

1. Swine plague and hog cholera are infectious and contagious diseases.
2. The causes of these diseases are invisible "germs," called bacteria.
3. These germs can be carried in food, water, clothing, mud on the shoes of persons or on the feet of animals, by dogs, birds, and other animals, utensils, etc.
4. Infection takes place through dust-laden air, contaminated food and drink, wounds of castration, bites of lice, etc.
5. Curative treatment is useless or impracticable.
6. Prevention is possible and practicable.
7. Food does not and cannot produce cholera or swine plague.
8. Susceptibility in animals varies, some are readily attacked, a few are immune.
9. Proper food and care, and judgment in breeding, increases the animal's power to resist disease. Poor food and care have the opposite effect.
10. Buying stock hogs or feeders is a dangerous plan. Farmers should breed and feed their own pigs.
11. Personal quarantine is at present the only solution of the hog cholera and swine plague problems.
12. The laws of the State regarding infectious swine diseases should be observed if good results are expected. Farmers and swine breeders should co-operate in the matter. The successful solution of this problem lies in their hands. The Board of Live Stock Commissioners is anxious to do all in its power, but without active assistance from the persons most interested its efforts must be futile.
13. Disinfection is one of the fundamental principles of sanitation. As ordinarily practiced it is worse than useless. To accomplish its object it must be absolutely thorough and carried out with a correct understanding of the results aimed at.

[APPENDIX F.]

REQUEST FOR INSPECTION AND TUBERCULIN TEST OF HERD AT EXPENSE OF BOARD OF LIVE STOCK COMMISSIONERS.

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To the Board of Live Stock Commissioners of Ohio, Columbus, Ohio:

Gentlemen:—I have reason to believe that some of my cattle are afflicted with tuberculosis and wish to have my entire herd inspected and tested with tuberculin and the diseased animals disposed of according to the rules and regulations of your Board.

I understand that this inspection and test are to be made at the expense of the state, and in consideration thereof I agree thereafter to observe the precautions and measures and to comply with the means recommended by your Board, to prevent the reintroduction and redevelopment of tuberculosis in my herd.

I certify that the cattle for which I request an inspection and test have been in my possession since........................

Yours respectfully,

(*Address*).................................

....................*County, Ohio.*

My herd contains the following animals: Cows....; heifers over one year old....; bulls over one year old....; steers:...; calves under one year old....; total...... The milk from this herd is used by........ ...., for ....

The cattle are......................................

(Breed.)

The following are my reasons for believing that some of my cattle are afflicted with tuberculosis:...................................

....

....

....

RULES AND REGULATIONS

OF THE BOARD OF LIVE STOCK COMMISSIONERS FOR INSPECTING AND TESTING CATTLE WITH TUBERCULIN, AND MEASURES RECOMMENDED TO PREVENT THE RE-INTRODUCTION AND RE-DEVELOPMENT OF TUBERCULOSIS.

(*a*) The owner of the cattle to be tested must agree to furnish all necessary assistance.

(*b*) All reacting (diseased) animals must be killed and burned or buried or sold to fertilizer works for fertilizer purposes. The hides may be removed and sold by the owner.

(*c*) After all diseased cattle have been removed the stable or stables must be disinfected according to the directions which follow, viz.:

Remove all manure, litter, fodder, etc., scrape floors and walls with a sharp hoe and thus remove every particle of dry manure, dirt, etc. (this cannot be done too thoroughly); remove all rotten and loose woodwork, boards, etc., from the sides and floors; sweep the mangers thoroughly and remove all accumulations of food and waste in and about them. Scrub the mangers and feed-boxes with hot water and soap or with a solution of lye. Then apply the disinfectant. One of the cheapest and best substances for this purpose is a one-tenth to one-fifth per cent. solution of bichloride of mercury—(a 5 per cent. solution of carbolic acid may be used instead, is very efficacious, but more expensive than bichloride of mercury)—made by dissolving one ounce of this substance in eight gallons of water for a one tenth per cent. solution; two ounces for a one-fifth per cent. solution. Dissolve first in one gallon of hot water and then add the rest of the water. This solution is highly poisonous, as are all strong disinfectants, and should be kept out of the reach of children and animals. It corrodes metal and is, therefore, best prepared in wooden or earthern vessels. It is applied with a brush or sprinkling can, or better, a spray pump.

Every particle of exposed surface, every crack or crevice, nail hole, etc., of the walls, ceilings, mangers and feed-boxes must be soaked with this solution. Poor or careless disinfection is no disinfection at all. A saturated solution of sulphate of iron should then be used to soak the floors, gutters, drains, etc. After everything is dry the entire interior of the stable may be whitewashed. The mangers and feed-boxes must then be washed with hot water to remove the bichloride of mercury, which might otherwise poison the animals.

After this the stable should, if possible, remain perfectly empty for a few weeks, and during this time and ever after exposed to as much air and sunshine as possible; both of these are enemies of disease germs and conducive to good health in animals. All litter, rotten wood, etc., removed previous to disinfection should be burned, or removed to a safe place. Manure would best be spread in a thin layer on a large flat field and thus exposed to the disinfecting action of the sun's rays. If there is a dirt floor in the stable several inches of the top layer should be removed with the manure.

In introducing new animals into the herd the tuberculin test must always be required, and the original herd should be re-tested with tuberculin every year until no more traces of disease are found to exist.

[APPENDIX G.]

COLUMBUS, October, 1902.

REGULATIONS FOR THE TRANSPORTATION OF SHEEP AFFECTED WITH SCABIES.

To the Managers and Agents of Railroads and Transportation Companies of the State of Ohio, Stockmen and Others:

To protect the sheep industry of this State the Board of Live Stock Commissioners of Ohio hereby declares the following regulations affecting traffic in sheep:

> From and after October 15, 1902, no sheep affected with scabies, and no sheep which have been in contact with others so affected, shall be allowed to be moved, shipped or driven from any point within this State to any other point unless said sheep shall have previously been dipped twice, at intervals of ten days, in a mixture approved by this Board.

The dips now approved by the Bureau of Animal Industry of the

United States Department of Agriculture, Washington, D. C., and which have been adopted by this Board, are:

1. THE TOBACCO AND SULPHUR DIP, made with sufficient extract of tobacco to give a mixture containing not less than five one-hundredths of one per cent. of nicotine and two per cent. flowers of sulphur.

2. THE LIME AND SULPHUR DIP, made with eight pounds of unslaked lime and twenty-four pounds of flowers of sulphur to one hundred gallons of water. The lime and sulphur should be boiled together for not less than two hours, and all the sediment allowed to subside before the liquid is placed in the dipping vat. When using either of these dips it is best to keep them at a temperature as near 110 degrees Fahrenheit as possible, stirring frequently. If the weather permits the sheep may be sheared before being dipped. Each animal must be kept in the dip two minutes, and the head as well as other parts of the body must be made thoroughly wet with the dip.

The penalty for violation of these regulations is from fifty dollars ($50) to five hundred dollars ($500), in addition to the penalty for violating any of the provisions of sections 4211-9 to 4212 inclusive, of the Revised Statutes of Ohio.

THE BOARD OF LIVE STOCK COMMISSIONERS.

PAUL FISCHER, *Veterinarian.* W. W. MILLER, *Secretary.*

NOTE—Additional copies of this circular can be had by applying to the Board of Live Stock Commissioners.

TUBERCULOSIS IN CATTLE.

The numerous inquiries concerning tuberculosis and the frequent requests for examinations and tuberculin tests of dairy herds that have been received by the State Board of Live Stock Commissioners, indicate that the farmers of Ohio take a live interest in the solution of the tuberculosis question.

A great deal has been said and written about the disease in the past few years, but many published statements are so far from being accurate representations of well known facts that a widespread confusion as to the importance of tuberculosis to cattle owners has arisen, and there seems to be a demand for accurate information on this much discussed subject.

What is tuberculosis? What are the symptoms of tuberculosis? Is tuberculosis a contagious disease? Does tuberculosis occur in man? Does tuberculosis occur in other farm animals than cattle? What is the cause of tuberculosis? Is tuberculosis curable? What shall be done with a herd in which the disease has made its appearance? What does the State Board of Live Stock Commissioners offer the farmers of Ohio in the form of aid in solving this problem? Does the State pay the owners of tuberculous cattle?

These are some of the questions most frequently asked, but none is so often heard as the last one, "Does the State pay the owners for tuberculous cattle?"

This clearly indicates that the financial end of the question is one that affects the farmers' interest. Whether the disease affects human beings, or in any way endangers their health, is secondary in the minds of some cattle owners. Important as this last question undoubtedly is, it is a matter that concerns, in a public way, the various boards of health. The State Board of Live Stock Commissioners is primarily interested in the economic phase of the question, in the health of the domestic animal. From this point of view the above questions with a few others, will be briefly considered in the following pages. Care has been taken to state nothing but clearly established and generally accepted facts.

Definition. Tuberculosis is an infectious and contagious disease that is caused by the tubercle bacillus. The disease may attack any or all organs of the body, but the lungs and the abdominal organs are the most frequent seats of the morbid changes.

Duration of the Disease. The course of tuberculosis is usually chronic, extending over months and years. In certain subjects the disease results in death in a short time, although this is the exception. Chronic and slowly developing cases may at any time become acute and end rapidly in death.

Occurrence. Tuberculosis occurs in practically all warm-blooded animals, including man, and may be transmitted to man by the lower animals, and vice versa. No domestic animal is exempt from possible attack, although some species are much more susceptible than are others. Cattle suffer more by far from this disease than other animals. In swine it is more common than is generally supposed. The horse, dog, cat, sheep and goat are also occasional victims. The disease is often observed in the chicken, especially where opportunities for infection are offered by tuberculous (consumptive) attendants.

Prevalence. Tuberculosis occurs in all civilized countries. One-seventh of all deaths among human beings are ascribed to this cause. Among farm animals it is most common where cattle are extensively raised, and where they are kept under highly artificial conditions, which are at the same time unhygienic. Close housing, poor ventilation and improper drainage, unsuitable food and impure water, etc., favor the development and spread of tuberculosis. Increased traffic in cattle is also a factor to be considered in explaining the increased prevalence of the disease in late years which has given rise to the erroneous belief that tuberculosis is a new disease. The fact is that tuberculosis was known to exist many centuries ago.

A few brief statistics will give an idea of the importance that this disease has assumed in other countries. Carefully kept slaughter house records show that the percentages of tubercular cattle in various countries are as follows:

Amsterdam, Holland ....13 per cent. of all cattle.
(Over 3½ per cent. of all swine.)
Prussia ....15 per cent. of all cattle.
Saxony ....30 per cent. of all cattle.
(Over 3 per cent. of all swine.)
Certain departments of France......25 per cent. of all cattle.

In England, James Wilson, Lecturer on Agriculture in Aberdeen University, states that the British farmer and stock owner lose annually about fifteen million dollars from tuberculosis in cattle. A herd of eighty pure bred Short Horns, intended for export from England to the United States, contained thirty-four tubercular animals, 42 per cent.

In the United States carefully compiled statistics are not available, but the disease is mostly found in the crowded districts near the large cities of the Eastern states. In isolated cases the prevalence of the disease is observed, although the figures obtained are not nearly as high as are those of European countries. The same may be said of Ohio, where the disease is known to exist as well as in any other civilized country, but there are good reasons for believing that it is less frequently met with here than in some of the Eastern states, and that some regions are comparatively free from it.

The Cause of Tuberculosis. The direct or exciting cause of tuberculosis is the tubercle bacillus. Nothing else can produce tuberculosis, and on the other hand, the tubercle bacillus can produce no other disease. Poor food and care, in themselves, can never produce tuberculosis; they can, however, so affect the body of an animal that its tissues become a more favorable soil for the development of the tubercle bacillus and thus increase the animal's susceptibility to the disease. Unscientific breeding of any kind acts in a similar manner. The disease itself, except in the rarest cases, is not inherited by the offspring.

Predisposition and Susceptibility. On account of certain weaknesses or defects of constitution, either inherited or acquired in later life, certain animals seem to be more liable to contract tuberculosis than others. Such animals are said to be predisposed to the disease, or to have a special predisposition or susceptibility. The two terms are of similar meaning.

The Tubercle Bacillus. The tubercle bacillus is a minute vegetable parasite that is visible only with the aid of a very powerful microscope. It exists, as far as definitely known, only in the bodies of animals that have tuberculosis, or in the excretions or products of such animals. The original source of the tubercle bacillus is not known any more than we know where the first cow came from.

Meat and Milk from Tuberculous Animals. The meat and milk from tuberculous animals may, and frequently do, contain the disease-producing organisms in large numbers. The use of products from tuberculous animals as food for other animals or for human beings may be the cause of the development of the disease.

How Does an Animal Contract Tuberculosis? Tuberculosis can be contracted in one way only, and that is by the entrance of the tubercle bacillus into the body of a susceptible animal and its consequent growth and development in the tissues of the body.

How Does the Tubercle Bacillus Get Into the Body? The tubercle bacillus may gain an entrance into the body in any one of three or four ways. First: It may be inhaled into the lungs in the form of dust. The dust of a room occupied by a tuberculous person, or that of a stable containing affected animals always contains these germs which are discharged from the body with the sputum of persons, and with the expectoration and other excretions in the case of animals. Infection in this manner causes pulmonary tuberculosis (pulmonary consumption of human beings). Second: The food may be contaminated with the excretions of tuberculous subjects. Where cattle are stabled the saliva from an affected animal may contaminate the food of its neighbor and in this way the disease is commonly spread. This explains the fact that when a number of cattle are affected in the same stable they are usually found grouped together and near the animal that introduced the disease into the herd. The feces of animals may be the carriers of the germ. This is of special importance where hogs "follow" cattle. The use of meat, milk, or any other product of a tuberculous animal, as food, may be the cause of tuberculosis. Thus calves are infected by suckling dams that have tuberculous udders. Third: The bacilli may enter wounds and then be carried to all parts of the body by the blood. Fourth: The act of copulation may be the means of transmitting the disease, when either the male or female generative organs are affected. The sources and opportunities of infection are thus seen to be varied and numerous.

The Appearance of the Organs of Tuberculous Animals after Death. The changes found in the body of an animal affected with tuberculosis vary with the age of the disease and with the organs affected. The commonest changes consist of nodules or "tubercles," which are most frequently found on and in the lungs, on the lining of the chest cavity, on the abdominal organs and on the lining of the abdominal wall. These tubercles vary in size from minute bodies as large as millet seeds to enormous tumors. They may occur singly or in large clusters. The larger ones, upon being cut open, usually discharge a yellowish cheesy, or pus-like mass. The tubercles on the surface of the lungs are pinkish in color and have an irregular, wart-like surface. The lymph glands in any part of the body may be converted into masses of the cheesy nodules described above.

The Symptoms of Tuberculosis. The symptoms of tuberculosis depend entirely upon the location and the extent of the disease, and are frequently very difficult to recognize. Thus we may find the symptoms of a chronic lung affection, characterized by cough, discharge from the nostrils, difficulty or other peculiarities of breathing, running down in condition, etc. Affections of the abdominal organs may cause diarrhoea, constipation, bloating and other symptoms of indigestion. Affections of the brain cause cerebral disturbances, such as impairment of sight, peculiarities of behavior, dullness or even great excitability. When the udder is affected this organ may present various modifications, hard lumps, abscesses, changes in the quantity and quality of the milk, etc., or nothing abnormal may be noticed. Some animals may seem to be in perfect health and yet the disease may be quite advanced and may assume the accute form at any time. Such animals constitute dangerous sources of infection. But even when they are present, none of the symptoms above given are strictly characteristic of tuberculosis, since all of them may be absent, and any or all of them may occur in the course of some other disease. Then

How Shall We Recognize Tuberculosis? The history of the herd is of especial importance in this connection. If the herd or some animal in the herd has not been thrifty for some time in spite of the best food and care, if there have been occasional deaths from unknown causes, if some animals cough occasionally, or continually, and, finally, if the herd is composed of animals recently bought up from various doubtful sources, public stock yards for example, there is good ground for suspicion that tuberculosis may exist. Abortion and barrenness are also common manifestations of the disease, but they may also result from other causes. In order to get definite and reliable information on the matter we must resort to

The Tuberculin Test. This consists in the careful measurement of the animal's temperature, followed by the injection of a certain quantity of tuberculin into the loose tissue under the skin. Within from eight to sixteen hours from the time of the injection of the tuberculin the temperature of the animal, if tuberculous, will become elevated in a characteristic way. If the animal is healthy no such elevation of temperature will take place. In making this test certain precautions, which cannot be given here, must be observed, and careful physical examinations must in some cases be made in order to avoid possible errors in diagnosis.

Is the Tuberculin Test Reliable? Although this test is not an infallible means of making a diagnosis for tuberculosis, it is the next thing to it. The results obtained from this test are more accurate than those obtained from any other known method of diagnosis for any other internal disease. By the use of tuberculin it has become possible to exterminate tuberculosis from a herd without sacrificing healthy animals.

Tuberculin. This is a liquid extract, so to speak, made from artificial cultures of the tubercle bacillus. Before it is ready for use it is subjected to the action of a temperature that is absolutely known to kill all tubercle bacilli, and then the dead bacilli are removed by a special process of filtration. Consequently

Tuberculin Cannot be Injurious to Healthy Cattle, and it causes no serious permanent disorder in diseased animals.

What Shall Be Done With Tuberculous Cattle? After the diseased animals have been recognized they should be immediately separated from the remaining healthy ones, to prevent the further spread of the disease. The quarters selected for the healthy animals, unless they have never been occupied by cattle before, should previously have been thoroughly disinfected, otherwise separation will amount to nothing. The affected animals can be disposed of in different ways, depending on conditions peculiar to each individual case. Badly affected animals must be killed and their carcasses destroyed by burning or deep burial. The carcasses of animals with certain forms of the disease (local forms), if not advanced may *under certain conditions* be utilized for beef. Healthy calves can be raised from slightly affected dams, but this is a procedure that is attended with many difficulties and drawbacks, and is usually not desirable unless the dam, for some reason, is an exceptionally valuable animal.

The Cure for Tuberculosis. Although cases of apparent recovery are sometimes met with, a real cure for this disease in cattle has not yet been found. The only remedy that has proven satisfactory is the immediate or gradual destruction of all affected animals and the careful isolation of the healthy ones. Improvement in our methods of feeding and general care, housing, etc., plays the most important part in the solution of this question.

Is it Desirable that Herds be Kept Free from this Disease? The control of tuberculosis in cattle is desirable for two reasons. In the first place it is a question of economy, a question of profit and loss in the dairy and in the beef feeding business. Secondly, it is a matter of hygienic importance in as far as it concerns the health of human beings that use meat and milk or other dairy products for food. But leaving the most important phase of the question entirely aside, that of the health of human beings, what are some of the economic reasons for controlling the spread of tuberculosis among cattle? There are several ways in which the disease may cause losses.

1. By direct loss of the animal through death.
2. By reducing the market value of an animal through loss of flesh.
3. By reducing the quantity and quality of the products of the dairy or beef animal and consequently the profits.
4. By the danger of infecting other animals, cattle and swine.
5. By reducing the breeding value of an animal—abortion, sterility, etc.
6. By injuring the reputation of a herd.

What is the State Board of Live Stock Commissioners Doing to Aid the Farmers in Solving the Tuberculosis Problem? The State Board of Live Stock Commissioners will test, free of charge to the owners, any dairy herds in the State of Ohio that are suspected of containing tuberculous animals, and give advice as to the best manner of getting rid of the disease. The conditions under which these tests will be made are as follows:

1. The owner of the herd to be tested must make a written application, on a form furnished for the purpose, to the State Board of Live Stock Commissioners, and in this application state his reasons, which must be acceptable to the Board, for believing that some of his cattle are tuberculous, and express his willingness to comply with the rules of this Board for regulating the spread of tuberculosis.

2. All reacting (tuberculous) animals that are in an advanced stage of the disease, or that show symptoms of udder affection, must be destroyed at once. All other reacting animals (i. e., those in apparent health) must be at once isolated from the remainder of the herd, which has been found free from all symptoms of the disease, and kept strictly isolated until disposed of either by slaughter and complete destruction of the carcasses by burning or burial, or by slaughter in abattoirs that are under the control of the Federal Meat Inspection Laws. Such cattle must be disposed of within one year from date of test.

This enables the owner to receive the market value of those animals that are fit for food, but he must bear the complete loss of those only that are dangerous for food purposes and consequently worthless any way.

At the present time the State has provided this Board with no funds whatever to compensate the owners for the loss of cattle in an advanced stage of the disease. Nevertheless, by disposing of diseased cattle according to this plan nothing but a decided advantage can result.

1. *Cattle belonging to the first class (those in an advanced stage of the disease and those with udder affection) are worse than worthless, being highly dangerous to the health of other animals, to say nothing of the health of attendants, and cannot possibly be a source of profit to the owner. Milk from such animals is also a dangerous article of food.*

2. *Animals belonging to the second class (those in apparent health) are a source of danger to the still healthy animals, are not making the profit for the owner that they should make, and are growing less in value every day. The milk from this class of animals may also be dangerous.*

3. Milk from animals not in an advanced stage of the disease, and that are free from all symptoms of udder tuberculosis may be sold, or it may be used for feeding to other animals, but only after having been boiled, or after having been Pasteurized by heating it not less than twenty (20) minutes at 140 deg. F. (60 deg. C.). This destroys all tubercle bacilli, hence removes all danger of infection and the Pasteurization does not in any way injure the milk or cream (consistency or creaming properties).

4. After the tuberculous cattle have been removed, the stable in which the remaining healthy cattle are to be kept must be cleaned and disinfected according to the rules of the State Board of Live Stock Commissioners. The necessary changes to insure better sanitary conditions must also be made.

These changes consist principally in providing thorough drainage and in the admittance of a plentiful amount of light and air by providing windows and ventilators where they are needed.

5. Calves dropped by tuberculous animals *during the year which they are permitted to be retained* must immediately be removed from their dams and raised on milk from healthy cows or on boiled or Pasteurized milk from reacting animals.

6. All newly introduced stock must be tested with tuberculin and found free from tuberculosis before it may be allowed to mingle with the healthy herd.

(This must be done at the owner's expense.)

7. Within six months or one year after the first test a second test will be made at the expense of the State (providing this is deemed necessary at the time of making the first test) in order to detect any affected animals that may have failed to react at the first examination.

After the herd has been declared free from tuberculosis the owner must agree to do all he can to keep his herd healthy by keeping the surroundings in a sanitary condition and by permitting none but healthy (tested) animals to be introduced into his herd.

THE STATE BOARD OF LIVE STOCK COMMISSIONERS.

PRESS BULLETIN No. 1.

Rabies (Hydrophobia) Among Live Stock.

During the past year rabies has become increasingly prevalent among the live stock on Ohio farms. The disease has been observed in nearly every county of the state, and within the past two weeks outbreaks have occurred on at least nine farms in a single county, the victims including not only horses, cattle, sheep, swine and dogs, but human beings as well.

In the absence of state laws for the control of the disease and the failure of local authorities to take up the matter, it is desirable that the general public be informed as to the nature of the disease and the best means to protect life and property against its ravages.

Rabies is a germ disease that may occur in all animals, as well as in human beings. In nearly all cases it is spread by means of the bite of an affected animal and there is no record of a single instance where the disease developed spontaneously.

After an animal has been bitten, and thus inoculated, it requires a variable time for the disease to develop. This time, which is known as the period of incubation, may be of a few days' duration or it may extend over several months. In dogs the average period of incubation is from three to six weeks. In the hog it is somewhat shorter; in horses, cattle and sheep it is from one to two months. But as before stated, the period may be much shorter or much longer than those given.

The symptoms of the disease are not alike in all animals although they are always those of a nervous disorder. There may be abnormal excitement or nervous depression, depending on the stage and form of the disease as well as on the natural habits, or temperament, of the affected animal. Mad animals do not always bite as is popularly supposed; even dogs, unless they are naturally of a vicious nature, frequently show no tendency to bite unless they are irritated. When irritated, especially in certain stages of the disease, there is a marked tendency in all animals to use their natural weapons of defence. Thus the dog and pig will bite viciously, sheep and cattle will use their heads and horns, horses their hoofs and cats their teeth and claws. Many horses will bite, but this is rarely true of sheep and cattle.

One of the most characteristic symptoms is the peculiar change of the voice. The bark of a mad dog is emitted in single prolonged impulses of a distressing tone and might be described as halfway between a howl and a bark. Cattle emit distressing bellowing sounds, horses neigh and snort in a peculiar "muffled" manner. Sheep may bleat hoarsely or brokenly. These changes in the voice are due to a paralytic condition of the vocal chords. Dogs usually become restless, roam aimlessly about, snap at imaginary objects, swallow indigestible things like pieces of wood, stones, straw, dung, etc., and bite without provocation. Horses kick, bite, tear their mangers into pieces, sometimes, in their great agony, tearing the flesh from their limbs and shoulders. Cattle paw with their feet, dig up the ground with their horns, attack each other, run their heads against fences, buildings, posts, and try to gore man or beast. Their eyes are usually red and prominent. Sheep act in a similar manner. These animals rarely attempt to bite.

All animals show symptoms of a depraved appetite, apparently preferring to eat earth, dirt, manure, etc., to their natural food. Affected animals are usually thirsty, and have no dread of water, though they are frequently unable to drink on account of the existing paralysis.

After one to several days, or even a week, the animals invariably die. The pig; when affected with rabies, bites viciously, and is, for this reason, one of the most dangerous animals. The dog, however, from the fact that it is usually at large and has complete liberty of moving about from place to place and from farm to farm, is the agent that is chiefly responsible for the spread and perpetuation of the disease. The pig, when at large, is fully as dangerous an animal as the dog.

Animals suspected of having the disease should be carefully isolated and guarded until an opinion as to the real nature of the disease has been obtained from a reliable veterinarian. If the disease is rabies, or if the owner of a suspected animal has good reason to believe this to be the case, the State Board of Live Stock Commissioners should be notified at once and furnished with detailed information as to the origin and extent of the disease, as far as this may be known. Hereupon the veterinarian of the board will make a careful investigation of the reported outbreak so that such action may be taken by the board as the safety of the owner of the affected and exposed animals, and the public in general, may demand.

In any neighborhood where the disease has made its appearance no dogs should be allowed to run at large unless they are provided with a well fitting muzzle, or led with a chain. Strange dogs, roaming at large, should be destroyed at the first opportunity, and before they have time to do any possible damage. Other animals that are suspected of having been exposed to infection should be isolated and carefully watched for a period of at least three months before they are permitted to mingle with other animals. Exposed pigs, located by the Board of Live Stock Commissioners, are appraised and destroyed, and the owner paid for his loss.

The most important thing in the control of rabies is the proper handling of the dog question. As long as the country is full of dogs whose owners permit them to run at large without proper muzzles, rabies will continue to exist, and break out at more or less regular intervals.

In countries where rabies was alarmingly prevalent in former years the disease has practically disappeared since laws preventing the uncontrolled roaming about of dogs have been enforced. We must look forward to the time when the same effective measures can be applied here, but until then farmers and live stock owners, as well as other persons, should do everything in their power, as individuals, to prevent the unnecessary spread of rabies, by destroying every suspicious dog and seeing to it that their own dogs, when running at large, are properly secured with a well fitting muzzle. A properly fitting muzzle is no hardship to an animal, it not only permits drinking and barking, but prevents the possibility of being poisoned by enemies of the owner, and above all it is an absolute prevention of the spread of rabies. The muzzling of all dogs for a period of one year would put an end to the disease, save the state thousands of dollars in stock that is annually destroyed, and prevent the useless sacrifice of human life. After a period of one year the muzzling restriction could be removed until the disease was re-imported from other states where no protective measures exist, when the same measures would have to be repeated.

Suspected outbreaks of rabies in dogs, or any other animals, should be reported at once, either by letter, telegraph, or telephone, to

THE STATE BOARD OF LIVE STOCK COMMISSIONERS,

PAUL FISCHER, *Veterinarian.*
Columbus, Ohio.

UNIVERSITY OF ILLINOIS-URBANA
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